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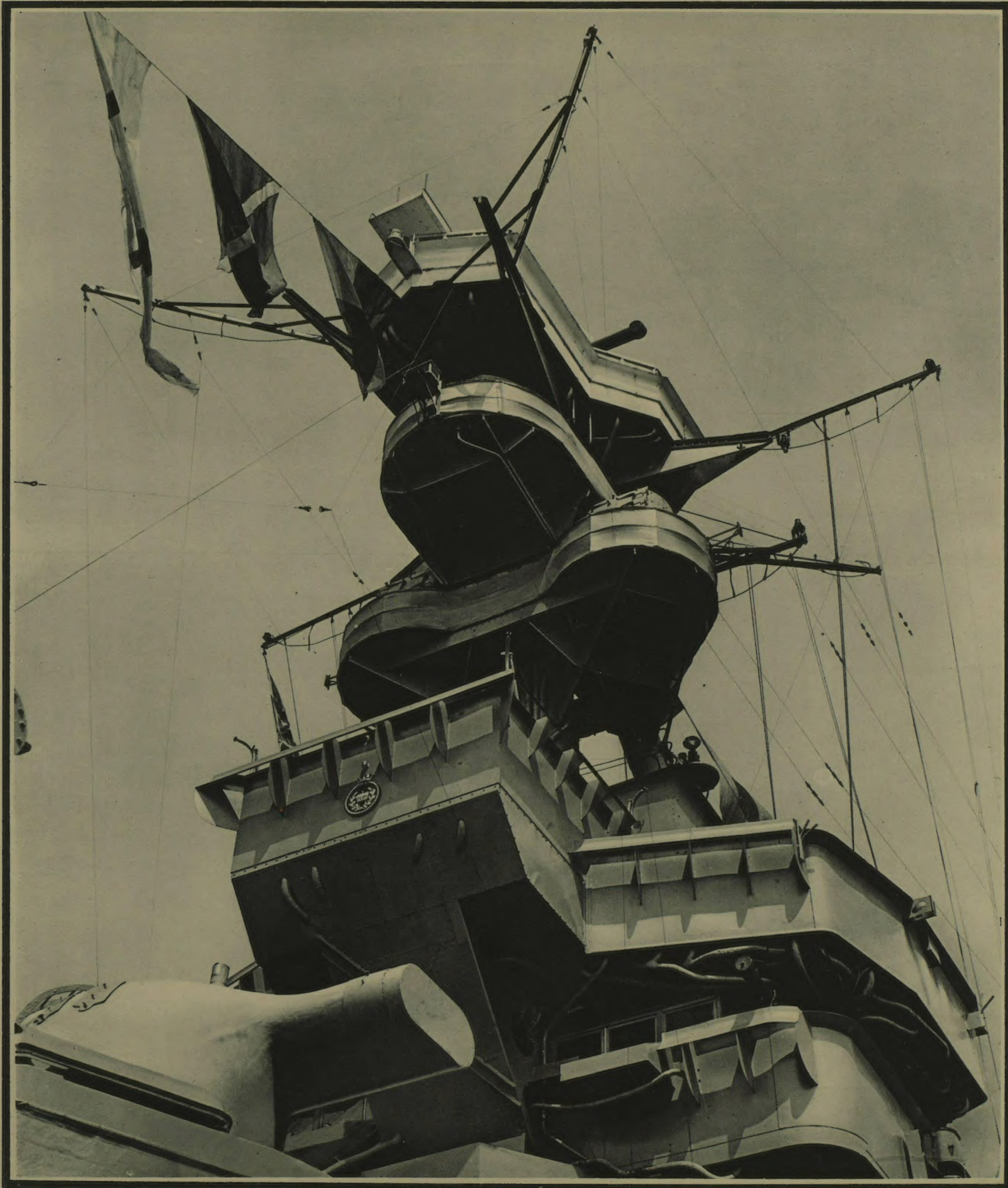
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THE ILLUSTRATED LONDON NEWS

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SATURDAY, AUGUST 5, 1939.



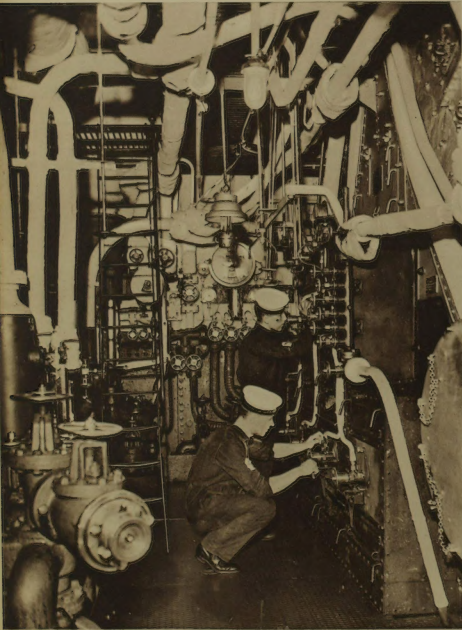
WHERE THE FIGHTING ACTIVITIES OF A BATTLESHIP ARE CO-ORDINATED: THE SUPERSTRUCTURE; SHOWING THE CONTROL-TOPS, THE FORE-BRIDGE, AND THE UPPER CONNING-TOWER WITH ITS RANGE-FINDER.

Our picture shows the superstructure of the 29,150-ton battleship "Royal Oak," which will be taking part in the combined fleet and air exercises of the Home Fleet this month and in September. At the top of the tripod mast is the upper control-top and, immediately below, the lower control-top, flanked by two searchlight

positions. Underneath is the fore-bridge, from which the ship is normally navigated, and in the left foreground can be seen the range-finder on top of the upper conning-tower, from which the ship is navigated when in action. Further photographs taken aboard the "Royal Oak" and "Repulse" appear on the following pages. (S. and G.)



PROTECTED BY THE MAIN ARMOUR BELT AND WELL BELOW THE UPPER-DECK LEVEL: A SECTION OF THE MAIN SWITCH-BOARD ROOM ABOARD "ROYAL OAK," WHICH CONTROLS THE DISTRIBUTION OF THE ELECTRICAL POWER.



A CONTRAST TO THE GRIMY STOKESOLDS OF THE COAL-FIRED SHIPS OF FORMER DAYS: IN THE BOILER-ROOM OF "ROYAL OAK" WHEN AT FULL SPEED; SHOWING RATING WATCHING THE OIL-FUEL NOZZLES WHICH FUEL THE BOILERS.

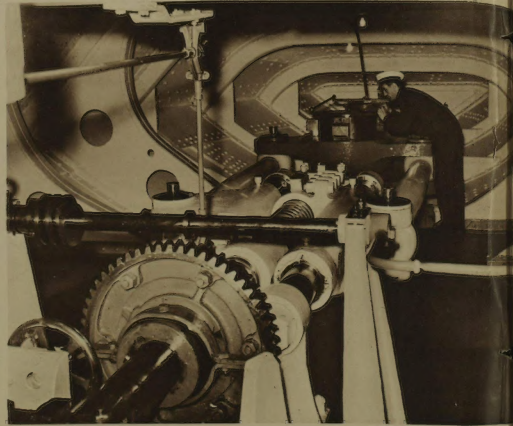
ACTION STATIONS AND A-A. GUN-DRILL THE METHOD OF CENTRALISED CONTROL



THE MAIN ENGINE CONTROL POSITION IN A BRITISH BATTLESHIP; SHOWING THE TELEGRAPHS BY WHICH ORDERS ARE TRANSMITTED FROM THE FORE-BRIDGE, GAUGES (CENTRE) AND AN ENGINE ROOM ARTIFICER WRITING UP THE LOG.



THE LOWER BRIDGE: SIGNAL-RATING STOWING FLAGS AFTER MAKING A SIGNAL; ON THE RIGHT A SEMAPHORE AND SEARCHLIGHT USED FOR MORSE.

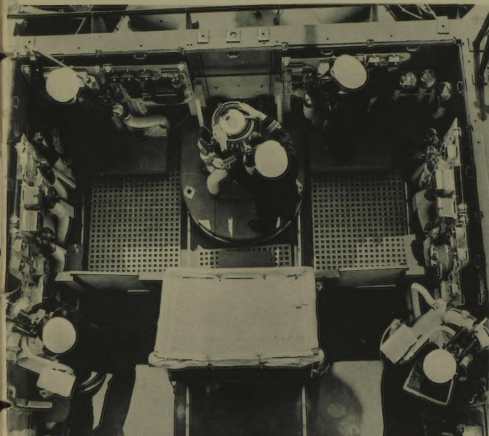


THE STEERING COMPARTMENT IN "ROYAL OAK": A PHOTOGRAPH IN WHICH THE RUDDER-MAN CAN BE SEEN IN THE BACKGROUND AND IN THE FOREGROUND THE MASSIVE GEARING NECESSARY TO TURN IT.

FOLLOWING the review by the King of the Reserve Fleet in Weymouth Bay on August 9, these ships will take part in large-scale manoeuvres with the Home Fleet, lasting well into September. They will be manned by 12,000 retired naval officers, reservists and pensioners who have been called up under the Reserve and Auxiliary Forces Act, 1939. In addition to this increase in naval personnel the first batch of 500 men of the Royal Naval Special Reserve—conscripts who have expressed a preference for naval instead of military training—will be called up for six months' training on August 16, and further groups will follow at intervals of two months. It is expected that about 12,000 men will enter the R.N.S.R. each year and 1200 will join the Marines, and that by the end of the

(Continued below, on right)

ABOARD A BRITISH WARSHIP AT SEA: WHICH ENSURES FIGHTING EFFICIENCY.

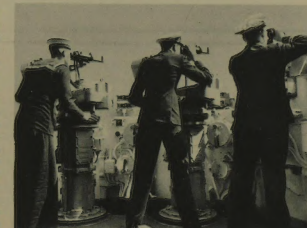


THE FORE-BRIDGE ABOARD "ROYAL OAK": SHOWING THE CHIEF YEOMAN OF SIGNALS (TOP; LEFT); THE NAVIGATING OFFICER TAKING A COMPASS BEARING (CENTRE); THE CAPTAIN (TOP; RIGHT); AND TWO LOOK-OUTS.

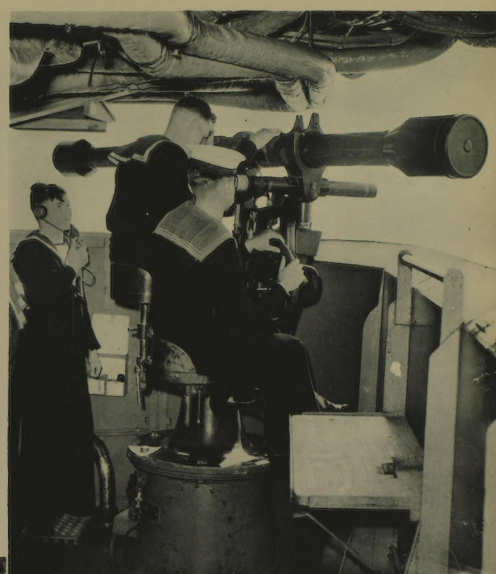


GUN-DRILL ABOARD THE BATTLE-CRUISER "REPULSE": CAS-MASKED RATINGS LOADING ONE OF THE RIGHT 4-IN. ANTI-AIRCRAFT GUNS WHICH PROTECT THE SHIP FROM AERIAL ATTACK.

year the Royal Navy will have a strength of 138,000. The photographs on these pages were taken aboard the battleship "Royal Oak" and the battle-cruiser "Repulse," and show the various activities of a warship at sea. The superstructure, which is illustrated on the previous page, contains the "brain" of the ship, for it is navigated, and the armament controlled, from there. Orders for alterations in the ship's speed are transmitted from the fore-bridge or the conning-tower to the engine-room by telegraph, and it is from the fore-bridge that the ship is normally navigated. Range-finders for ascertaining the range of targets and for navigational purposes are situated at various points on the superstructure owing to the elevation thus obtained, and signals are made from the lower bridge by flags, semaphore or Morse. (S. and G.)



IN ACTION: FOLLOWING THE MOVEMENTS OF A TARGET FROM THE SUPERSTRUCTURE BY MEANS OF BINOCULARS FITTED WITH A SIGHTING DEVICE.



ONE OF THE SMALLER RANGE-FINDERS, USED FOR GUNNERY AND NAVIGATIONAL PURPOSES, SITUATED ON THE SUPERSTRUCTURE OF A BATTLESHIP AND HERE SEEN BEING USED FOR PICKING UP A DISTANT TARGET.



AT ACTION STATIONS: THE SECOND-IN-COMMAND AND HIS STAFF IN THE LOWER CONNING-TOWER, FROM WHICH THE SHIP IS CONTROLLED SHOULD THE NAVIGATING POSITIONS ABOVE BECOME UNTENABLE.



By ARTHUR BRYANT.

A FEW weeks ago I had occasion to fly across Europe. I lunched in my native Bucks, amid the elms and pastoral uplands that stretch from my window towards the blue horizon of Northamptonshire, had tea in a deserted Sabbath Kensington, dined on the edge of the Zuyder Zee and supped beneath the floodlit limes of Berlin. Unusual experiences are always worth recording, and as this one interested me, I should like, for what they are worth, to record my impressions of it. They will never be quite the same again.

The airport at Croydon is not an inspiring place. It is efficient and, on a fine summer evening, it is crowded with spectators of a kind who somehow do not make it more beautiful: when one has said that one has said all. One clammers into one's machine, and if one is unlucky—and I was—into rather an old-fashioned one (it was not British, I am glad to say) in which there was not much room to take a four hours' flight in comfort. As the 'plane took off, bumping like a tea-tray, I felt a spasm of regret for the cool meadows I had left behind, the swift-haunted eaves of my ancient house and the quiet lawn before it, where otherwise at that hour I should have been sitting. As we banked, south London swung dizzily by, hazy, enormous and, I reflected with the once practised eye of a bombing pilot, easy to hit. At least one could always hit something, though any object really worth hitting, I also reflected, would be like searching for a needle in a haystack.

Then we straightened out and turned our nose into the east. The two great engines roared deafeningly on either side and the heat in the narrow, crowded car seemed for the moment as oppressive as that in a Bank Holiday excursion train. Overcoming a slight feeling of nausea, that all my flying experience has never quite rid me of, I gazed down on the wooded Surrey valleys around Caterham—at least I judged that was where we were. They seemed, I remember, extraordinarily full of houses. For twenty minutes we passed over a kind of stockbrokers' England, full of gentlemen's places, with hard tennis courts and minute gentlemen and their lady belongings playing upon them: and where there should have been, by a countryman's reckoning, farms, there were golf courses. To the north a winding glint of silver marked the Medway and a vaster, dimmer opalescence, the widening Thames. Somewhere up there one glimpsed tall chimneys and the smoke of many factories.

Somewhere down there, too, below our dipping and undulating wings, were the traces of an older England: grey church tower and spire, kiln and oast, mellowed red-brick farm and manor, and minute sheep grazing in fields whose hedgerow timber threw long, leisurely shadows across the sunlit green. I had only time for a glimpse of the Downs, for the next moment we sighted the sea. We seemed to have taken a course farther to the west than I had expected, for as we sped out from the shore I saw that the town to the left was Folkestone, where for four years I attended, with some reluctance, but no doubt with a good deal of unconscious profit, a preparatory school for young gentlemen. It has since been turned

into a convent, and I could see its Edwardian Tudor winking genteelly at the evening sea as we sped by. Beyond were the Leas, where once, as a boy, I saw Blériot's 'plane coming out of the Channel skies and where, several years later, as a young pupil of Blériot's novel craft, I waited mournfully for the leave-boat to take me back to France, while gazing down enviously on the youth and beauty of Folkestone enjoying themselves on the beach. This evening I also felt a little envious at the silver quietude of a Channel steamer, gliding out to sea: the inside of the aeroplane seemed very hot and cramped.

A small tube at my side, not unlike those through which one is supposed to direct the driver in the more expensive kind of taxi, gave me, by pressing back a small silver bell, what I needed—draughts of deep-sea air. I felt better, and watched the purposeless gleaming boats and twin shores of Dover and Calais with some pleasure. And a memory of the war—the last one—flashed through my mind: the maddening and

Once the fleets of Britain and Holland contended for mastery along that coast; the fires of that conflict have been dead these two hundred years, and Holland and Britain now contrive to get along very well without fighting. The land that lay fenced in from the sea below me seemed a pleasant enough country, with enormous fields full of bulbs and neatly laid-out roads peopled with bicycles, and lakes alive—but not too alive—with pleasure boats: a land plainly planned for its people's happiness. The aerodrome at which we descended for a half-hour's respite was as neat as the countryside—clean, spacious and leisurely: in a gay café, in which half Amsterdam seemed to be drinking its beer and sipping liqueur, I ate the largest and most delicious sandwich I have ever encountered in my life, and, lest the experience should fade too quickly, I ordered and ate another. My last glimpse of Holland was of unending silver canals fading into dusk and, behind the Zuyder Zee, vast, round and gleaming, with a flaming sunset behind it that made an Englishman think of the island from which he was

being so swiftly borne—white cliffs rising proudly out of the sea, St. Paul's dome and the elms of his own home.

It was almost night when we crossed the frontier. I had not flown over Germany since 1918: one was not then a popular visitor and was too apt to be greeted by white shell-bursts and angry barks, and the stutter of alien machine-guns. From what I could see of it, this fabulous country of marching armies and no butter, of parades, pogroms and concentration camps, was as peaceful a place as England: a land of farms and homesteads and well-tilled fields and little ancient churches. Here at least were vestiges of a common civilisation; that neat ferry, glimpsed in the last slant of light, somehow recalled Bablock Hythe, and the thought of it as a prospective bombing target brought little pleasure to my curious English mind. As we sped on in the darkness, at intervals of every quarter of an hour, a little slip of paper would be passed back from the pilot's cockpit giving the name of some approaching

gleam of light: Osnabrück and Minden where, two hundred years ago, hungry English troops with an English monarch at their head fought and conquered to gain their breakfast; and Hanover, which gave us our Royal Family and old Handel. Every now and then a great lighthouse would rise above the cloaked plain, like a beam of civilisation in a land where, for a quarter of a century, civilisation has not been the assured continuous background of life it has been in England, but a blessing often lost and always to be fought for, and in search of which men would fight and even suffer great crimes. And I recalled how, on my last visit to the land below me, sixteen years before, a dark, terrible poverty lay over all its idle towns, and the men and women in the streets bore the pallid stamp of hunger on their faces. Even before the marshalled lights of Berlin spun out of the darkness like a pageant, just four hours after leaving London, the consciousness was strong on me of how much, for all its superficial differences, our European civilisation is a unity. We can destroy it or we can save it, but now that Europe has sunk to such a tiny compass I doubt if we shall ever achieve the latter except by co-operation.



TRYING OUT THE NEW DRILL FORMATION—IN THREES INSTEAD OF FOURS—FOR THE TROOPING OF THE COLOUR: A DEMONSTRATION BEFORE THE KING ON THE HORSE GUARDS PARADE, GIVEN TO ENABLE HIS MAJESTY TO JUDGE OF THE SUITABILITY OF THE FORMATION FOR CEREMONIAL PURPOSES.

On Friday, July 28, the new marching-in-threes formation, introduced some time ago for general ease of manoeuvre in the field, made its first appearance on the Horse Guards Parade, when it was tried out by detachments of the 1st Battalion Grenadier Guards and 1st Battalion Irish Guards to enable his Majesty to judge of its suitability for Trooping the Colour and guard-mounting drill. (Central Press.)

tantalising sight of the English coastline far away when, on a summer's day, one had laboriously climbed over one's aerodrome in Flanders before turning eastwards and crossing the German lines. France seemed so ridiculously near now that one could scarcely think of her any longer as a separate country, or of Britain as an island. No wonder the two nations, who less than eighty years ago had still regarded each other as hereditary enemies, were now allied: I began to feel that it was time that Germany and Britain were allied also, unless our two historic peoples are to destroy one another, like the Kilkenny cats.

A mother—a foreigner, by her look—was nursing her child behind me: her traditional attitude seemed to have no place in this small metallic cylinder roaring above the sea. Our eyes met for a second, and I was aware that there was an international language more communicative and binding than all the protocols of the Chancelleries. Far below—for we had climbed now to 5000 feet—the sea was grey and speckled: presently it merged into what was almost imperceptibly land—a land of islands and mud flats and great spaces that still seemed to belong to the sea.

REFUELLING FLYING-BOATS—AS FOR THE BRITISH TRANSATLANTIC SERVICE.



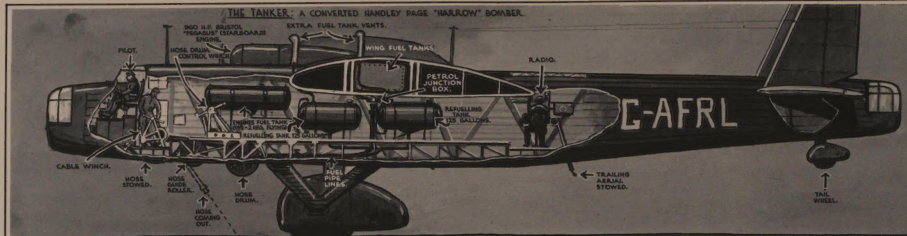
AFTER CONTACT HAD BEEN ESTABLISHED BETWEEN THE TANKER-AEROPLANE AND THE TRANSATLANTIC FLYING-BOAT:
THE "CABOT" TAKING IN PETROL THROUGH A HOSE WHILE TRAVELLING AT 130 M.P.H., DURING A DEMONSTRATION.

On July 30 the new process of refuelling in the air—as illustrated by our Special Artist on the following pages—was demonstrated at Southampton on the Transatlantic flying-boat "Cabot," whose sister-plane, "Caribou," is due to leave to-day (August 5) with a full load of mail for Montreal and New York. Re-fuelling in mid-air will take place at Foynes, Ireland, preliminary to the Atlantic crossing. This first flight will inaugurate a weekly service between England and Canada and America, via Montreal and New York respectively, refuelling also taking place at Botwood,

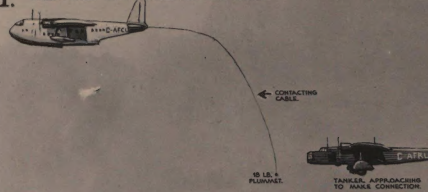
Newfoundland. In the above photograph, taken during the demonstration of refuelling given over Southampton Water, the "Cabot" (below) is seen, after the petrol hose-line from the air-tanker had been connected, taking on board a supply of petrol while in flight. At the conclusion of this operation, which went without a hitch, the "Cabot" carried out a demonstration of safety jettisoning of 100 gallons of petrol. As the result of the new scheme, the "C" class flying-boats will be given an increased pay-load in the air on the trans-oceanic crossing of some two tons. (Graphic.)

REFUELLING ALOFT—A DEVICE WHICH ENABLES TRANSATLANTIC

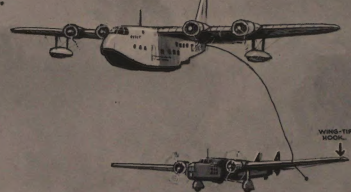
DRAWN BY OUR SPECIAL ARTIST G. H. DAVIS, WITH THE ASSISTANCE



1. "EMPIRE" FLYING-BOAT (RECEIVING AIRCRAFT) LETTING OUT 200 FT. OF LIGHT CABLE WHILST FLYING ON A STRAIGHT AND LEVEL COURSE.



2. TANKER CONNECTING. THE WIRE IS TOUCHING THE LEADING EDGE OF THE WING.

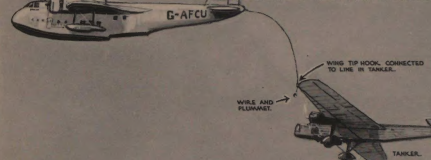


5. AFTER THE CONTACTING WIRE CONNECTION (WING-TIP HOOK) HAS BEEN WOUND INTO TANKER, A STOUTER CABLE KNOWN AS THE HAULING LINE IS ATTACHED TO IT AND THE RECEIVING AIRCRAFT NOW COMMENCES TO WIND IN THIS LINE.

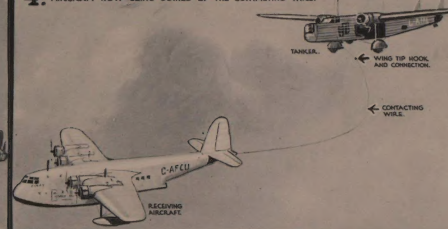


3. THE TANKER IS MOVING AWAY TO STARBOARD SO THAT THE WIRE IS PULLED SLIGHTLY OUT OF ITS TRUE TRAILING PATH, THE STRAIN IS SUFFICIENT TO CAUSE THE WIRE TO SLIDE ALONG THE LEADING EDGE TOWARD THE WING-TIP AND DRAW THE WING-TIP HOOK FROM ITS HOUSING.

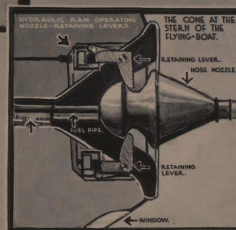
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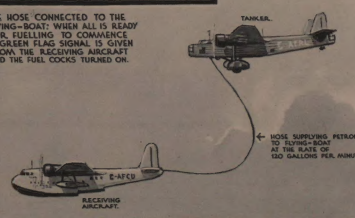
4. THE TANKER NEXT CLIMBS ABOVE AND BEHIND THE RECEIVING AIRCRAFT THE TWO AIRCRAFT NOW BEING JOINED BY THE CONTACTING WIRE.



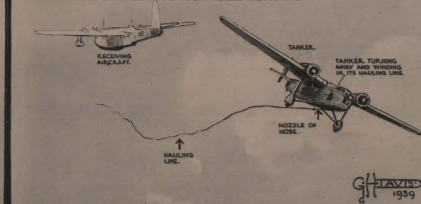
6. WITH THE TWO AIRCRAFT ON A LEVEL COURSE THE HAULING LINE IS FINALLY DRAWN INTO THE FLYING-BOAT AND THE TANKER'S CREW NOW ATTACHES THE NOZZLE OF THE HOSE TO THEIR END OF THE LINE.



9. THE HOSE CONNECTED TO THE FLYING-BOAT WHEN ALL IS READY FOR FUELLING TO COMMENCE A GREEN FLAG SIGNAL IS GIVEN FROM THE RECEIVING AIRCRAFT AND THE FUEL COCKS TURNED ON.



10. WHEN FUELLING HAS BEEN COMPLETED A WHITE FLAG SIGNAL IS FLOWN FROM THE FLYING-BOAT, THE PETROL COCKS ARE TURNED OFF AND THE WIRELESS CREW IN THE FLYING-BOAT RELEASE THE NOZZLE AND LET OUT THE HAULING LINE UNTIL THE TWO AIRCRAFT ARE DISCONNECTED. THE TANKER THEN RETURNS TO ITS BASE AND THE FLYING-BOAT BEGINS ITS FLIGHT ACROSS THE ATLANTIC.



G.H. DAVIS
1939

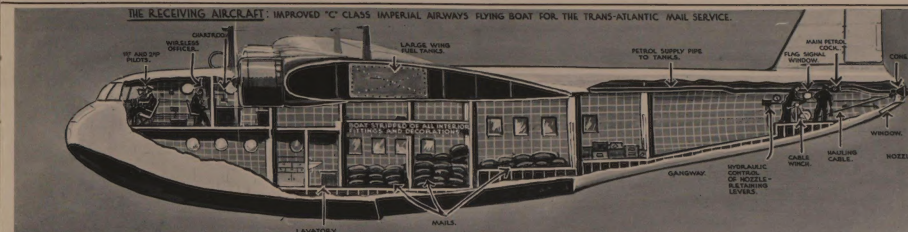
HOW IMPERIAL AIRWAYS TRANSATLANTIC FLYING-BOATS ARE REFUELLED IN THE AIR: THE FLYING-BOAT

Commencing from to-day (August 5), Imperial Airways are to run a weekly Transatlantic service between Southampton and Montreal. Of the two big improved "C" class Empire flying-boats, the "Cabot" and "Caribou," with which the service is to be inaugurated, the last-named is expected to leave to-day on the initial journey. Refuelling will be carried out while in flight over the Irish Free State and Newfoundland, namely, at Foynes, Eire, on the outward journey, and on the homeward flight to Southampton at Botwood, Newfoundland. The system of refuelling to be used is that developed after long and painstaking experiments by Sir Alan Cobham, K.B.E., A.F.C., the managing director of Flight Refuelling, Ltd., and the method employed is clearly shown in the series of drawings on these pages. It is claimed that

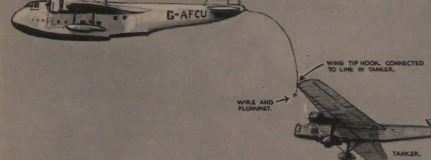
by this system the big flying-boats are able to carry a far heavier payload than would be possible if they were filled up with fuel before taking off from the water. The boats are now issued with a certificate of airworthiness for a take-off weight of approximately 48,000 lb., and an all-up weight, after air refuelling, of 53,000 lb. As will be seen from the illustrations, the "tanker-planes" (Handley-Page "Harrows" lent by the Air Ministry) are provided with special winches and drums for controlling the refuelling hose, and each has a crew of four highly skilled men. Contact between the machines is made by the flying-boat, which lets out from its stern port 200 ft. of trailing line with a plummet weight at the end, known as the "contacting-line." The tanker comes up behind and below, and its pilot so manoeuvres that the line

FLYING-BOATS TO CARRY A MUCH INCREASED PAY-LOAD.

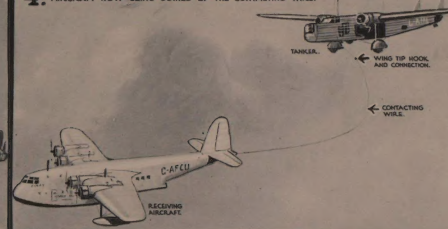
OF FLIGHT REFUELLING, LTD., AND IMPERIAL AIRWAYS.



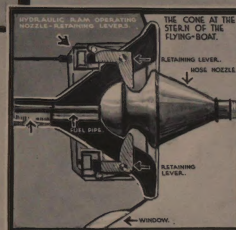
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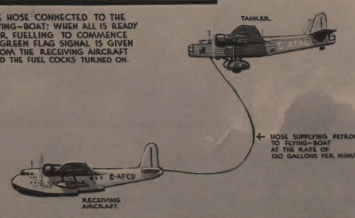
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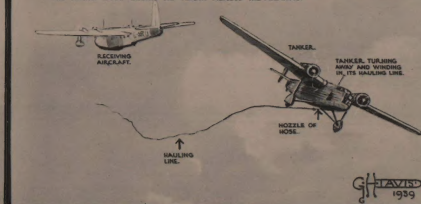
6. WITH THE TWO AIRCRAFT ON A LEVEL COURSE THE HAULING LINE IS FINALLY DRAWN INTO THE FLYING-BOAT AND THE TANKER'S CREW NOW ATTACHES THE NOZZLE OF THE HOSE TO THEIR END OF THE LINE.



9. THE HOSE CONNECTED TO THE FLYING-BOAT WHEN ALL IS READY FOR FUELLING TO COMMENCE A GREEN FLAG SIGNAL IS GIVEN FROM THE RECEIVING AIRCRAFT AND THE FUEL COCKS TURNED ON.



10. WHEN FUELLING HAS BEEN COMPLETED A WHITE FLAG SIGNAL IS FLOWN FROM THE FLYING-BOAT, THE PETROL COCKS ARE TURNED OFF AND THE WIRELESS CREW IN THE FLYING-BOAT RELEASE THE NOZZLE AND LET OUT THE HAULING LINE UNTIL THE TWO AIRCRAFT ARE DISCONNECTED. THE TANKER THEN RETURNS TO ITS BASE AND THE FLYING-BOAT BEGINS ITS FLIGHT ACROSS THE ATLANTIC.



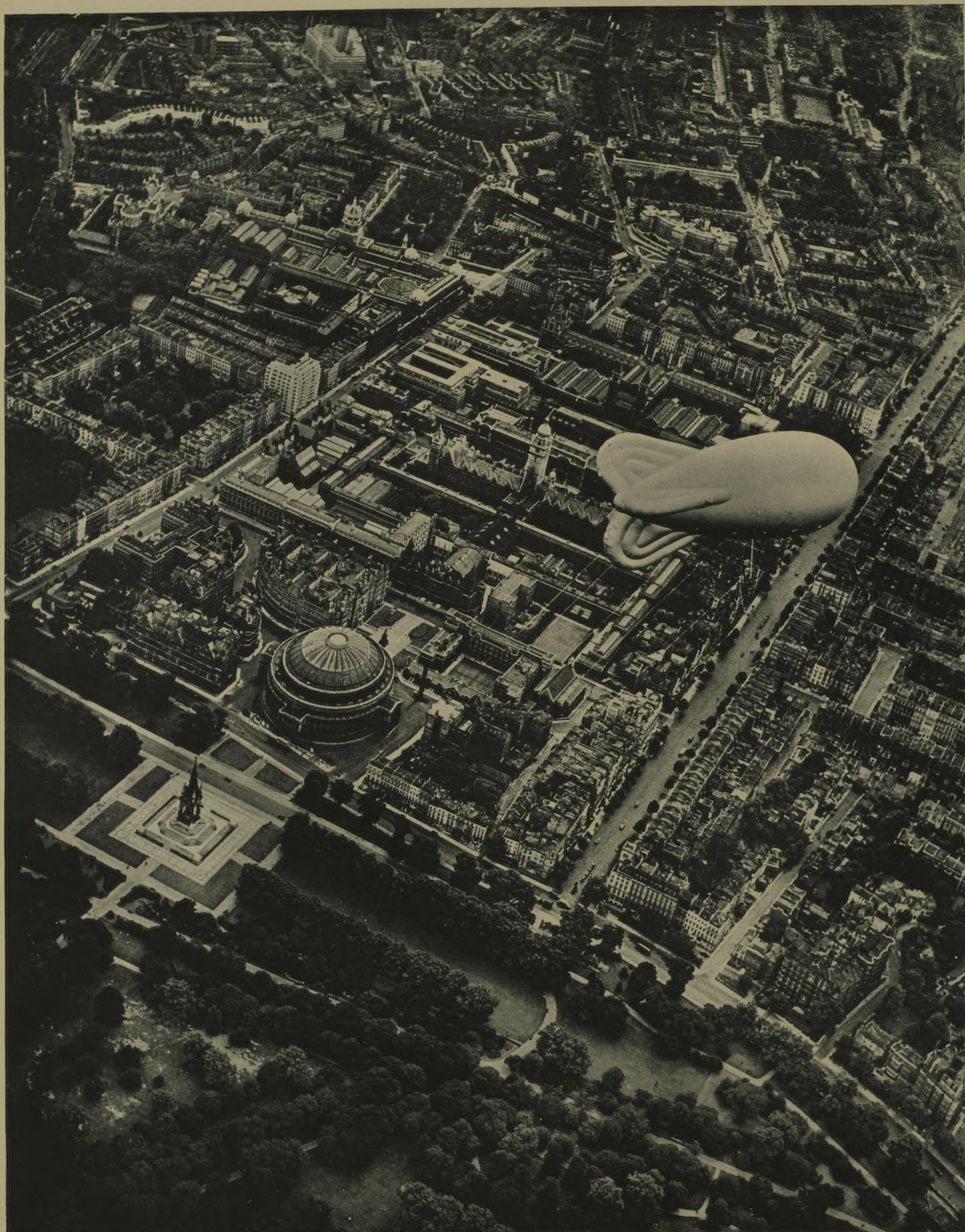
G.H. DAVIS
1939

MAKING CONTACT WITH THE "TANKER PLANE" IN THE AIR, AND RECEIVING THE FUEL THROUGH A HOSE.

comes in contact with the leading edge of the wing of the tanker. The latter now banks away so that the line passes up the wing and engages a hook fitted in the wing tip, which connects with the plummet on the line and is pulled out. This wing-tip hook is attached to a second or stouter line called the "hauling-cable." With the two aircraft "tied" together the tanker now climbs above and behind the flying-boat, which begins to haul in the cable. The nozzle of the hose in the tanker is drawn out, attached to the cable, and the hose begins to unwind. Then the nozzle comes into the cone in the stern of the flying-boat, and is secured by four hydraulically controlled levers. A flag signal from the boat informs the tanker that the receiver is ready to take in fuel. The cocks are turned on, and the big boat takes in petrol at

the rate of 120 gallons per minute. Special precautions are taken against "friction" fire in the pipe, and against uneven filling of the tanks. When the tanks are filled, another signal informs the tanker to shut off and prepare for disconnecting. Then the receiving boat lets go the levers holding the hose nozzle. The length of hauling cable is allowed to unwind from the receiver's drum, and winding in as it goes, the tanker turns back to its aerodrome, whilst the big boat, with its tanks fully charged, proceeds on its way. By means of this system of refuelling in mid-air, the flying-boats utilised will be enabled to carry much heavier pay-loads—over two extra tons—than would be possible if they had to get into the air with all the fuel for the Atlantic crossing on board.

AERIAL A.R.P.: A BARRAGE BALLOON ABOVE KENSINGTON GARDENS.



AN AERIAL GUARDIAN SOARING ABOVE THE ALBERT HALL AND ALBERT MEMORIAL: ONE OF LONDON'S BARRAGE BALLOONS, WHICH BEGAN A TWO-MONTHS' TEST ON JULY 28.

A two-months' test for London's barrage balloons began on July 28. The barrage units taking part are the ten London squadrons, comprising about 500 balloons, and mustering a total of 6000 officers and other ranks. The whole force will not be engaged at any one time, but there will be occasions at week-ends when more than 100 balloons will be sent up. The area of the exercises is roughly that of a circle with its centre Tower Bridge, and a diameter of fourteen miles. The balloons are

not being flown above a height of 2000 ft. by day, or 1500 ft. by night. The operating height of a balloon during war-time conditions would have to be at least 20,000-30,000 ft., in order to force the attacker up out of the zone where accurate bombing aim is possible. The first of the present exercises were to finish to-day (August 5); and the next exercises to be August 8-11, 7 p.m. till 7 p.m.; and September 22-October 1, 10 a.m. till 8 a.m. (Photograph by Keystone.)



THE WORLD OF SCIENCE.



THE MOST WONDERFUL OF LIVING VERTEBRATES.

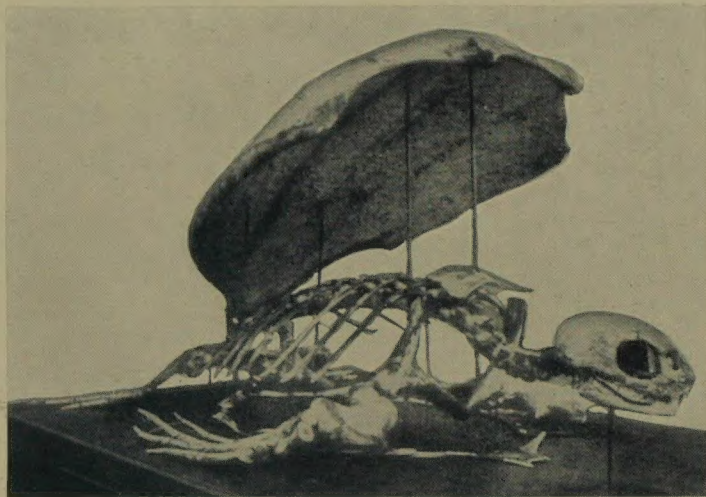
By W. P. PYCRAFT, F.Z.S., Author of "Camouflage in Nature," "The Courtship of Animals," "Random Gleanings from Nature's Fields," etc.

IN studying any of the larger groups of living animals two sources of information are all too commonly neglected. One of these is the racial history of that group as revealed by embryology; for herein, again and again, we find stages of development that are more or less accurate records of what were once adult stages, like the teeth found in the jaws of whale-bone whales. The other source is found in the records of the rocks, which, unfortunately, are very incomplete. This, however, must not be made a subject of complaint. Rather should we marvel that they have revealed so much. Just think for a moment under what fortuitous circumstances these records were made. When an animal dies, its body is commonly disposed of by some carrion-eater; or it may have crept into some cave to die; or its body may have been swept away by a flood and covered up by the mud of some estuary; or it may have died on the sea floor and its remains been more or less scattered. Very rarely are any traces to be found of soft parts. But even when such bodies have more or less completely escaped entire destruction, only by the merest chance are they likely to be discovered by any of those among us who find interest in "fossils." Two fossil examples of that wonderful bird, archæopteryx, have been found. Thousands of this and other strange types of birds must have been living at the time these two died and were buried; we may yet find some of them. But these two precious relics tell us that the earliest birds

tortoise tribe—the most wonderful of living vertebrates. In all others the skeleton is inside the body; in these creatures it is *outside*! This is true, at any rate, of the body, excluding the limbs, head, neck and tail. The earliest known fossil-remains tell us nothing of the manner in which this state of affairs came to be. All that we learn from them is that in times past there were giants among them, compared with which the giant tortoises of to-day are almost pygmies. The largest of all, *Colossochelys atlas*, had a shell nearly eight feet in length; but it is a typical tortoise-shell.

What is it that makes this strange armature so remarkable? A glance at the two photographs,

gone a stage further. The outer smooth skin has vanished, leaving the wrinkled surface of the bony shield. And this, it will be seen, has greatly shrunk. Its marginal plates have been lost, and it no longer covers the whole surface of the body. The leathery skin on which the shell seems to rest is probably all that remains of what once covered the whole shield. But there seems to be nothing in the conditions of life in these "soft-tortoises," as compared with numerous other species of river tortoises, which suggests an explanation of these degenerate stages. Living bodies, however, we are constantly reminded, by no means all, even in nearly related species, respond alike to similar stimuli. We have a striking illustration of this fact in some of the giant tortoises of the Galapagos Islands. Here, in two species—*Testudo Daudini* and *T. Abingdoni*—the front of the shell is raised up to form a great, open pent-house, exposing the fore-part of the body above the base of the neck, and the same is true of *T. vosmari*, of Rodriguez, one of the Mascarene Islands. In every other giant tortoise found in



1. SHOWING AN EARLY STAGE IN THE EVOLUTION OF THE TORTOISE: THE LEATHERY-TURTLE (*DERMOCHELYS*), IN WHICH THE SHELL, FORMED OF BONY NODULES EMBEDDED IN THE SKIN, IS STILL SEPARABLE FROM THE UNDERLYING VERTEBRAL COLUMN AND RIBS.



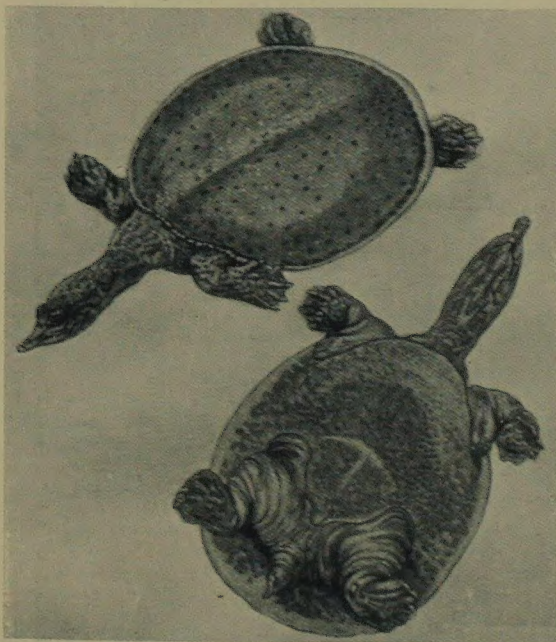
2. THE GREEN-TURTLE (*CHELONE*): A SPECIES WHEREIN THE SKIN HAS DEVELOPED HORNY SHIELDS COVERING A SERIES OF BONY PLATES WHICH HAVE SETTLED DOWN ON TO, AND FUSED WITH, THE SKELETON.

Figs. 1 and 2, should make this matter clear. But first it is to be remembered that the backbone and the ribs are, in all other animals, covered by a thick layer of muscles, which are covered, in turn, by the skin. But among the Chelonia, or tortoise-tribe, it is clear that at a very early stage in their evolution the skin must have been fortified by embedded bony nodules, recalling the bony shell of the armadillos among the mammals. Very soon, however, it would seem that these nodules came to form an unyielding case which rendered the back-muscles useless. As a consequence, these muscles, from lack of use, atrophied, and gradually disappeared, thus lowering the shell down on to the spines of the backbone, which, in turn, became relieved of their functions, and also degenerated, so that the shell came to rest at last on the ribs. In Fig. 1 the skeleton of the leathery-turtle shows that this final stage has not been reached. The ribs are still to be found when the solid shell is lifted off. But in the green-turtle—and all other turtles and tortoises—that fusion between the shell and the ribs has taken place. The ribs are seen embedded in the bony back-shield, and only the bodies of the separate bones of the backbone can now be seen.

But the tortoises and turtles, with some exceptions to be mentioned presently, show yet another strange feature. The bony shell is covered by a series of horny plates, symmetrically arranged, and bearing no relation in their form to the underlying bony plates of the skeleton. There is usually a row of five hexagonal plates running down the centre of the shell and four large plates on either side, while a row of much smaller plates runs round the margin of the shell. What brought about their special shapes and symmetry? After these horny plates have all been removed grooves in the underlying bony shell mark their places. Though the number of these plates remains the same in all the species—and they are many—their colouring, and to a certain extent their shape, varies. In the hawksbill turtle, for example, they form overlapping plates, like tiles on a roof. But as a rule their margins are close-fitting.

In the leathery and green turtles we are afforded an insight into the course of the evolution of the shell in the tortoise-tribe, and in the "soft-tortoises" or "mud-turtles" we can see this shell in different stages of decadence. In the genus *Trionyx* (Fig. 3), for example, the horny outer covering-plates have vanished, leaving only a soft, leathery skin. But the underlying shell has a wrinkled surface. In Cantor's soft-tortoise (*Pelochelys*), Fig. 4, this degeneration has

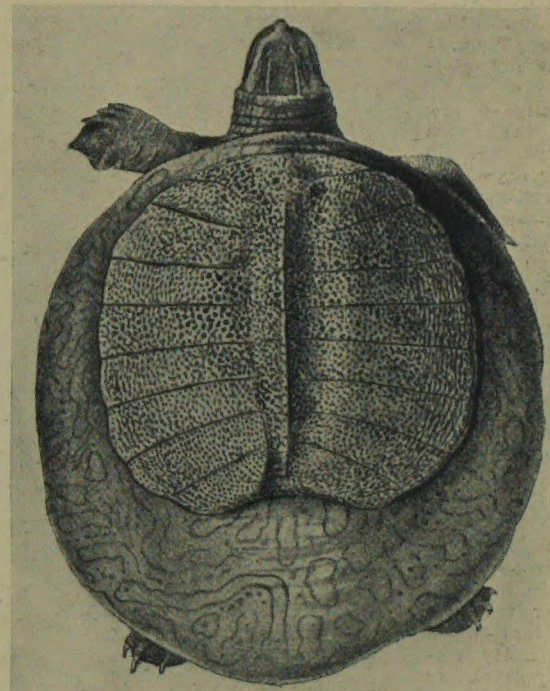
these islands the front border of the shell turns downwards, as in all other tortoises from every part of the world, leaving only a constricted opening. What incited this strange diversion in the form of the shell? Again, in some of these giant tortoises, as in



3. ONE OF THE "SOFT-TORTOISES" (*TRIONYX*): A SPECIES WHEREIN THE OUTER LAYER OF HORNY PLATES HAS BEEN LOST AND REPLACED BY A LEATHERY SKIN COVERING THE SKELETON.

yet retained evidence to show us that they had had a reptilian descent. The presence of teeth in the jaws, and the long, lizard-like tail, entirely unlike that of any other bird, leave us in no doubt.

But there are some groups living to-day of which, as to their ancestry, we know nothing. Those really wonderful creatures, the flying land-dragons, or pterodactyles, and the tortoises and turtles, afford instances of this. Of the pterodactyles I hope to write later. For the moment, I want to speak of the



4. SHOWING A FURTHER STAGE IN THE DEGENERATION OF THE SHELL: CANTOR'S SOFT-TORTOISE (*PELOCHELYS*), WHEREIN THE LEATHERY SKIN COVERING THE UNDERLYING BONY SHELL HAS DISAPPEARED, EXPOSING THE SHELL, WHICH IS GRADUALLY SHRINKING SO THAT IT NOW COVERS ONLY THE MIDDLE OF THE BACK.

T. Abingdoni, the thickness of the shell has been reduced to the extremest possible limits short of collapse. The process has gone on until large vacuities in the shell have been formed. But it seems impossible to discover the agency which has brought about this reduction. This fact becomes the more puzzling when it is remembered that in the giant fossil tortoise, *Colossochelys*, the shell was an inch thick.

The World of the Kinema.

By MICHAEL ORME.

SPIES!

IN my youth we used to play a game that ranged from the ground floor to the attics of an old, and, for our delight, carefully darkened house. It was called "I spy." I believe all youngsters play it, adapting it according to their imaginations. Our formula was "I spy a Spy," and a very exciting business it was, for the quarry led us from one black hide-out to another, to pounce, when cornered, on the timid, and to be caught in the end by the braver

excitement of the spy-thriller. Actuality has been dramatised, and reality reinforced, by introducing the elements of detective drama, when Mr. Edward G. Robinson steps into the frame as the "G"-man who breaks up the spy ring.

Two British espionage dramas, both produced by Mr. Irving Asher, have recently changed places on the Odeon screen. The first was "Q Planes," directed by Mr. Tim Whelen, a tale of bombing-planes mysteriously lost over the Channel. The hunters, or, rather, their head, Major

Hammond, of Scotland Yard, emphasised the entertainment value of the film. The continual disappearance of the bombers during their trial flights was explained in the realistically staged scenes at sea, where a secret and powerful ray, operated from the decks of an apparently innocent trawler, brought the 'planes down like crippled sea-gulls. Undoubtedly a strong "situation," yet it was the rich comedy performance of Mr. Ralph Richardson, genial sleuth, whose amiable smile masked an astute mind, and whose only weapon took the homely form of an umbrella, that gave the picture its individual *cachet* and focussed our main interest on the problems of pursuit.

In "Spy in Black," successor to "Q Planes" at the Odeon, the hunt is up almost from the start, though it is cleverly camouflaged. This gripping drama harks back to the Great War and makes but few concessions to comedy relief. The title is somewhat misleading, for the chief character, to whom it refers, is not a spy. He is a German U-boat commander under secret orders to proceed to one of the Orkney Islands and there to contact with a Secret Service agent whom he finds installed as the young and charming new teacher in a village school-house. With her is a British ex-naval officer, apparently ready to sell his country and drown his conscience in drink. An elaborate plan to sink part of the British Fleet in Scapa Flow awaits the commander. It is not only defeated, but

leads to a turning of the tables disastrous to the enemy. The picture is impressively staged, with stirring scenes of naval encounter and panoramic glimpses of British battleships. Its

"The Four Just Men," presented at the Gaumont, Haymarket, does not hamper its flight with any conspicuous concern for verisimilitude. It is, indeed, exuberantly melodramatic, even if it does run full-tilt into a frenzy of fervent patriotism, and ascribes to one of its four heroes not only the averting of a major catastrophe for England, but also the speeding-up of National Service. Freely adapted from an early Edgar Wallace thriller (very freely, I understand, though I have not read the book), this picture



"SPIES OF THE AIR": THE OCCUPANTS OF A HOUSE NEAR SALISBURY PLAIN (FROM L. TO R.)—DOROTHY HOUGHTON (JOAN MARION); HOUGHTON (ROGER LIVESY); THURLOE (BARRY K. BARNES); MRS. MADISON (EVERLY GREGG); AND MADISON (BASIL RADFORD).

"Spies of the Air," which was recently at the Plaza, is a thrilling film dealing with the attempt made by a foreign Power to obtain the plans of a new secret aeroplane under test at an aerodrome on Salisbury Plain. Thurloe, a brilliant young test pilot, is in love with Dorothy Houghton, wife of the aircraft's designer. On the day of the test a strange aircraft flies over the new machine and the plans are passed to it. Thurloe lands and presently the strange aircraft also comes down and the spy, in a desperate effort to escape, perishes in a blazing aeroplane.

members of the hunt. There, in their simplest form, were most of the elements of the espionage drama. We did not arrange for any romantic entanglements, and we never troubled to invent any reason for all this desperate to-do. The chase was the thing. The chase, when all is said and done, remains the thing in the spy-stories of the screen, however profuse the trimmings, and however carefully established the ultimate objective of the spy. The chase, with its set-backs and its false scents, with its constant dangers and the growing excitement as the field of action narrows down, is the secret of the unwavering popularity of those two first-cousins—the detective-thriller and the drama of espionage. No other medium of entertainment is so pre-eminently suited to the tempo of the chase, so capable of giving full value to every move of the hunters, every counter-move of the hunted, as that of the kinema.

The possibility of adding a topical flavour to the thriller may well have weighted the scales at the moment in favour of the spy-hunt, rather than the criminal-hunt. Topicality certainly plays a very big part in the phenomenal success of "Confessions of a Nazi Spy"—a success

so great that the picture is now enjoying the unusual honour of running simultaneously at two West End houses, the Regal and the Warner Theatre. This First National picture, brilliantly directed by Mr. Anatole Litvak, and admirably acted, is daring in its exposure of the elaborate spy system throughout America. Undoubtedly it derives its sensational quality from its basis of fact. Built up as it is on the revelations of Mr. Leon G. Torrou, former agent of the United States Federal Bureau of Investigation, and on recent spy trials in America, strengthened by the spoken commentary that links up its events, the picture combines the interest of an extraordinarily vivid documentary with the



"CONFESSIONS OF A NAZI SPY," AT THE WARNER THEATRE AND THE REGAL: MEMBERS OF A GERMAN SPY ORGANISATION IN AMERICA GATHER ROUND THE MODEL OF AN ANTI-AIRCRAFT GUN.

"Confessions of a Nazi Spy," a film based upon the recent revelations of German espionage in America, can be seen at the Warner Theatre, Leicester Square, and at the Regal, Marble Arch. It is reviewed on this page.

atmosphere is tense. The threads of the plot are firmly held by the director, Mr. Michael Powell, though they lead to a solution dramatically withheld until the end. Told with restraint, the story keeps the balance even between the conflicting parties. Courage, patriotism and a stern sense of duty inspire the actions on both sides, and war itself is the only villain of a drama that has a tragic undercurrent. Mr. Conrad Veidt, as the U-boat commander, Miss Valerie Hobson and Mr. Sebastian Shaw as secret agents with a dangerous mission, reflect the spirit of the picture in their well-contrasted studies of unquestioning obedience to orders to which all private emotions must be subservient.



"SPY IN BLACK," AT THE ODEON, LEICESTER SQUARE: CAPTAIN HARDT (CONRAD VEIDT), ABOARD THE GERMAN SUBMARINE, RECEIVES INSTRUCTIONS TO MAKE CONTACT WITH AN AGENT IN THE ORKNEYS.

In "Spy in Black" Conrad Veidt plays the part of a German submarine commander who attempts to get information concerning the movements of the British Fleet. How his efforts are foiled by the counter-activities of a British naval officer and a village schoolmistress makes a very thrilling story.

from the Ealing Studios is sufficiently exciting, entertaining and well acted to silence any queries as to "how and why" that may, at moments, seek to obtrude themselves. The four just men have set themselves the task of championing the right and suppressing the wrong. They do not hesitate to run into danger (one of them, for instance, narrowly escapes the executioner's axe in a foreign prison, where he has been picking up enemy secrets), nor do they object to gangster methods. When necessary they kill. They

electrocute an M.P. in his bath so that England may learn the truth. Their spy-hunt sweeps along at top speed through the streets of London and a fashionable dress salon, to wind up in the House of Commons, where the actor-member of the formidable quartet impersonates the murdered traitor. His escape remains one of the picture's mysteries. Here is spy-drama with the emphasis emphatically laid on the chase, and it succeeds, thanks to Mr. Walter Forde's able direction.

A sturdy little British picture, "Spies of the Air," well deserved a longer run at the Plaza, for it was admirably made by Mr. David MacDonald, director of "This Man is News" and "This Man in Paris."



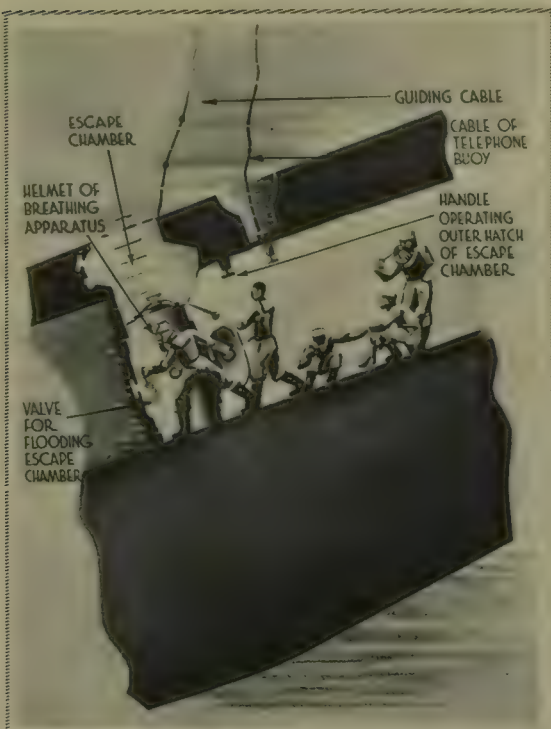
"CONFESSIONS OF A NAZI SPY": SCHNEIDER (FRANCIS LEDERER), A GERMAN-AMERICAN WHO GIVES EVIDENCE AGAINST HIS FELLOW-SPIES, QUESTIONED BY RENARD (EDWARD G. ROBINSON), A "G"-MAN UNDER INSTRUCTIONS TO BREAK THE SPY RING.

Though once again the spies were after aircraft secrets, the drama in an aerodrome on Salisbury Plain was intimate and urgent, and the mystery of the leakage well maintained.

Espionage is spun into the dark fabric of "Le Drame de Shanghai," a new French film at the Academy, that carries the hallmark of its director, Mr. G. W. Pabst. Dealing with the sinister activities of a society of agents provocateurs calling itself "The Black Serpent," with the opposition of a young Chinese patriot and the tribulations of a lovely Russian night-club singer, the picture seethes with personal and mass emotions against a turbulent background of modern China.

ITALIAN SUBMARINE RESCUE METHODS—BY "LUNG" AND CYLINDER.

REPRODUCTIONS FROM THE ORIGINAL DRAWINGS FURNISHED BY "ILLUSTRAZIONE ITALIANA"; BY PERMISSION OF THE ITALIAN NAVAL AUTHORITIES.



THE USE OF A METHOD VERY SIMILAR TO THE DAVIS ESCAPE APPARATUS (THE SO-CALLED ESCAPE "LUNG") TO SAVE THE CREW OF A SUNKEN SUBMARINE, IN THE ITALIAN NAVY: (LEFT) A MAN ENTERING THE ESCAPE LOCK WEARING HIS BREATHING APPARATUS; (CENTRE) OPENING THE HATCH OF THE LOCK AFTER FLOODING IT; AND (RIGHT) RISING TO THE SURFACE.



THE USE OF THE INGENIOUS GEROLAMI ESCAPE CYLINDER IN THE ITALIAN NAVY BY MEN TRAPPED IN A SUBMARINE: (LEFT) A MAN ENTERING THE ESCAPE CYLINDER (WHICH IS HOUSED IN A WELL IN THE SUBMARINE) THROUGH THE ESCAPE LOCK; (CENTRE) THE ESCAPE LOCK HAVING BEEN FLOODED, THE MEN IN THE SUBMARINE OPEN THE HATCH; AND (RIGHT) THE GEROLAMI CYLINDER RISING TO THE SURFACE WITH A MAN INSIDE.

THE recent series of submarine disasters in the American, French and in the Royal Navy have given rise to widespread discussion as to improvements in the means of escape from a sunken submarine. In our last issue we illustrated a number of devices suggested by a British naval commission and by British experts. On this page we show escape apparatus installed in Italian submarines. This includes a method of escape similar to that used with the Davis apparatus in British submarines; a buoy equipped with a telephone which can be released from a sunken submarine, and similar to one such illustrated on the double-page in our last issue; and one quite novel device, the Gerolami submarine escape cylinder. The working of the Gerolami cylinder is illustrated in the four lower drawings. It is housed in a special well in the submarine. In it one man can reach the surface at a time. It has the advantage that it could probably be used at greater depths than the Davis escape apparatus. Mechanically the device appears to be admirable; but the room it and its well take up would probably represent a serious incursion upon the limited hull-space of a submarine, wherein every cubic inch must be

(Continued opposite.)



A RESCUE FROM A SUNKEN SUBMARINE BY MEANS OF THE GEROLAMI CYLINDER: THE CYLINDER AT THE SURFACE, THE MAN OPENING THE LID AND HAULING THE SALVAGE PARTY.

employed to the utmost possible advantage. The drawings show the cylinder in its well, and a man entering through a lock, which appears to be identical to that used for the Davis escape apparatus, if, indeed, it does not serve for both. The escape chamber is then flooded, the hatch opened, and the cylinder sent to the surface. A cable attached to its lower end allows it to be hauled down into the submarine again, for use by the next man, power being provided by a special motor. In the Italian equivalent of the Davis escape apparatus the outer hatch roughly corresponds to the hatch above the exit of the escape chamber in the superstructure of a British submarine. In the Royal Navy this hatch is kept open when a submarine dives, but in the Italian navy the outer hatch is opened from inside the submarine when occasion requires. Apart from that, procedure appears to be the same as with the Davis escape chamber in British submarines, the man entering the lock with his breathing "lung" on and flooding the lock himself. Directly the flooding is completed, the hatch becomes easy to open and the man rises by his own buoyancy to the surface. In Italian submarines a guide cable is provided for the men going to the surface.



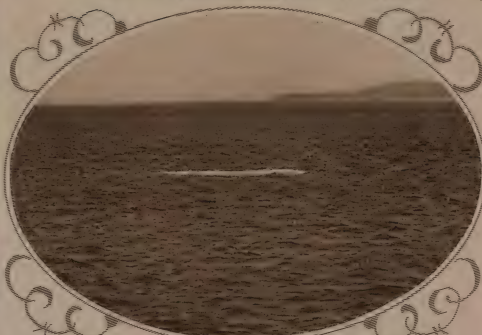
1. RESCUE APPARATUS IN GERMAN SUBMARINES: THE CHAMBER IN WHICH A PNEUMATIC RAFT IS PACKED, UNINFLATED, THE LID BEING OPENED BY SPRINGS SO STRONG THAT IT TAKES TWO MEN TO CLOSE IT.



2. THE FIRST STEP TAKEN IN A GERMAN SUBMARINE AFTER A DISASTER: RELEASING THE CATCH OF THE LID OF THE PNEUMATIC RAFT CHAMBER, THE STRONG SPRINGS FORCING THE LID OPEN AGAINST THE EXTERNAL WATER PRESSURE.

On the previous page are illustrated two methods adopted in the Italian navy for the saving of men trapped in a sunken submarine. These methods suggest interesting comparisons with those of our own navy. On these pages we illustrate the working of the method used in the German submarine service, which includes the use of a "lung" very similar to the Davis escape apparatus. As an additional safety measure, however, the men trapped in a German submarine are able to release a special fabric raft. This is packed in a chamber fitted with a cover that has springs sufficiently strong to open it

GERMAN SUBMARINE A "DAVIS ESCAPE APPARATUS";



3. AS THE LID OF THE PNEUMATIC-RAFT TRAP IS OPENED, A PATCH OF BUBBLES, OF AIR AND OF GAS GENERATED INSIDE THE RAFT, RISES TO THE SURFACE.



4. CHEMICALS INSIDE THE RAFT, ON COMING IN CONTACT WITH THE SEA WATER, GENERATE A GAS WHICH INFLATES THE RAFT. IT RISES TO THE SURFACE, BUT REMAINS ATTACHED TO THE SUBMARINE BY A CABLE.



5. THE USE OF THE PNEUMATIC RAFT TO SUSTAIN MEN WHO HAVE ESCAPED FROM THE SUBMARINE. THE "TOWER" IN THE CENTRE (ALSO INFLATED) IS PAINTED RED AND WHITE, TO ATTRACT THE ATTENTION OF RESCUERS.

under any water pressure likely to be encountered. As the bundle of fabric floats out of the opened chamber the sea water makes contact with a chemical apparatus inside the raft and generates a gas that inflates it. The raft rises and floats upon the surface in a fashion similar to that of the rubber "bathing rafts" often seen in swimming-pools and at the seaside. Meanwhile, the men in the submarine are preparing to escape. The escape hatch is not, as in modern British submarines, a special compartment, but merely a lock in the shape of a shaft projecting from the roof of the submarine's hull. Water

RESCUE EQUIPMENT: AND A PNEUMATIC RAFT.



6. MEANWHILE, IN THE SUBMARINE, THE MEN ARE PREPARING TO MAKE THEIR ESCAPE. THEY ARE GATHERED IN ONE COMPARTMENT ROUND THE ESCAPE LOCK. THE LOWER EDGE OF THIS IS SEEN ON THE RIGHT, THE INNER DOOR BEING OPEN. THEY ADMIT WATER TO EQUALISE THE PRESSURE.



7. THE WATER RISES ROUND THEM, INCREASING THE PRESSURE OF THE AIR TRAPPED IN THEIR COMPARTMENT, UNTIL THE PRESSURE BEING ALMOST EQUALISED, THE OUTER HATCH OF THE ESCAPE LOCK LOOSENS, AND WATER BEGINS TO STREAM IN THROUGH THE ESCAPE LOCK. THIS PHOTOGRAPH IS TAKEN LOOKING UNDER THE LOWER EDGE OF THE LOCK.

is admitted into the submarine to equalise the pressure inside and outside the boat. As it rises, the pressure in the section of the vessel in which the men waiting to escape are grouped also rises, until, presently, the hatch at the top of the escape lock becomes loose and opens slightly and water begins to trickle down inside the hatch as well. Finally the water-level reaches the lower edge of the escape lock. When the air is compressed to a pressure equal to that of the water outside, the level remains constant. The men, standing with their heads and shoulders above water-level, can breathe for a



8. THE WATER NOW BEING UP TO THE MEN'S NECKS, THEY PUT ON THEIR ESCAPE APPARATUS—CONSISTING OF A NOSE-CLIP AND A MOUTHPIECE CONNECTED TO AN OXYGEN SUPPLY. THE WATER IS ABOVE THE LOWER EDGE OF THE ESCAPE LOCK, SEEN ON THE LEFT.



9. ONE BY ONE THE MEN DIP UNDER THE LOWER RIM OF THE LOCK (WHICH IS NOW ENTIRELY FILLED WITH WATER) AND RISE UP THROUGH IT BY THEIR OWN BUOYANCY, THE OUTER HATCH BEING EARLY OPENED NOW THAT OUTSIDE AND INSIDE PRESSURES HAVE BEEN EQUALISED.



10. RISING TO THE SURFACE THEY SWIM TO THE ESCAPE RAFT AND REST ON IT. ITS EQUIPMENT INCLUDES A VERY-LIGHT PISTOL FOR ATTRACTING THE ATTENTION OF RESCUERS.

certain time even without their apparatus. This consists of a nose-clip and a mouthpiece connected with an oxygen supply. Having put on their apparatus, one by one, they dip under the water and under the edge of the escape lock and rise to the surface by their own buoyancy and that of their oxygen supply. At the surface they find the pneumatic raft waiting for them. This is equipped with iron rations, and also a Very-light pistol for attracting the attention of rescuers. The gases generated inside the raft also inflate a "tower" in the centre of it, painted in conspicuous red and white stripes.

IN GERMANY NOW: U-BOAT AND A.R.P. EXERCISES; HEAVY ARTILLERY.



LARGE-SCALE GERMAN SUBMARINE EXERCISES IN THE BALTIC: ADMIRAL RAEDER, NAVAL COMMANDER-IN-CHIEF, TAKING THE SALUTE FROM A FLOTILLA OF U-BOATS.

About forty submarines took part in the combined exercises in the Baltic which terminated on July 25—the largest such display since the German underwater arm was re-established in 1935. Admiral Raeder, the German Naval Commander-in-Chief, attended these exercises. He saw five flotillas perform a mass diving demonstration. There are at present over fifty U-boats in commission, and a number more building. Many of these are only small coastal and training boats of 250 tons;



THE GERMAN NAVY EXPERIMENTS WITH CAMOUFLAGE FOR SUBMARINES: A BOAT OF ONE OF THE "SEA-GOING" TYPES, IN THE BALTIC EXERCISES.

but there are also seagoing boats of 500 tons, and some large "ocean-going" boats of 740 tons. The camouflaged submarine seen in the second photograph would appear to be the "U 32," or one of her sister-ships—seagoing vessels having a speed of nearly 17 knots, and armed with a 3.5-inch gun, an anti-aircraft gun, and five 21-inch torpedo-tubes. The small anti-aircraft gun can be plainly seen, elevated at a considerable angle, abaft the conning-tower. (Keystone Photographs.)



AS THE AIR-RAID WARNING SOUNDED IN BERLIN: PEOPLE ON THE ALEXANDER PLATZ MAKING FOR A PUBLIC AIR-RAID SHELTER—THE CLOCK ABOVE THE TRAM REGISTERING 6.52. Elaborate A.R.P. exercises began on the afternoon of July 26, when a warning was given by sirens for all Berlin A.R.P. workers to stand by for duty. The general alarm was given at 6.50 p.m., when the sirens sounded. Everyone made for the nearest shelter. Motorists stopped their cars in side streets and ran for public shelters. Passengers in buses had all to get out. It was stated that the streets were cleared in eight minutes, only policemen being left. Simultaneously



FIVE MINUTES LATER: THE ALEXANDER PLATZ DESERTED—THE CLOCK ABOVE THE TRAM, WHICH HAS BEEN ABANDONED, STANDING AT 6.57.

with the alarm interceptor fighters went up from the Tempelhof aerodrome, and anti-aircraft machine-guns fired a few dozen rounds at "raiding" bombers. Police and Air Force cars sped through the streets to take note of the speed with which they had been cleared. The "all clear" was not given until 8.05 p.m., so that more than 4,500,000 Berliners were kept in their cellars for an hour and a quarter. A complete black-out of the city started at dusk on the same day. (A.P. Photographs.)



HEAVY ARTILLERY, WHICH THE GERMAN ARMY IS DEVELOPING INTENSIVELY: THE CREW SHUTTING UP THE MASSIVE LATERAL SUPPORTS OF THE CARRIAGE DURING EXERCISES WITH ONE OF A BATTERY OF RAILWAY GUNS. (A.P.)



REALISM IN THE BERLIN AIR EXERCISES, IN WHICH INTERCEPTOR FIGHTERS TOOK TO THE AIR AND ANTI-AIRCRAFT GUNS WERE FIRED: "VICTIMS" BEING CARRIED TO A DRESSING STATION BY STRETCHER BEARERS. (A.P.)

IN THE EAST: THE CRAIGIE-ARITA TALKS; ANTI-BRITISH OUTBREAKS.



MAINTAINING THE JAPANESE BLOCKADE IN TIENSIN: A PATROL OF OFFICERS AND SOLDIERS ON THE HAIHO RIVER. (A.P.)



GETTING SUPPLIES INTO THE BLOCKADED BRITISH CONCESSION AT TIENSIN: BRITISH TROOPS DRIVING LIVE CATTLE PAST THE BARRIERS. (A.P.)



THE HOSTILE DEMONSTRATIONS OUTSIDE THE BRITISH EMBASSY AT TOKYO: STUDENTS AND OTHER JAPANESE WAVING FLAGS AND BANNERS ON THE EVE OF THE CRAIGIE-ARITA CONVERSATIONS. *Wide World.*



WORKING UP ANTI-BRITISH AGITATION IN NORTH CHINA: A DEMONSTRATION IN TSINGTAO, WITH BANNERS, SOME OF THEM BEARING CRUDELY WRITTEN SLOGANS IN ENGLISH. (Planet.)



UNABLE TO GO INTO THE COUNTRY AS THE RESULT OF THE JAPANESE BLOCKADE: CHILDREN IN A PARK IN TIENSIN, CLIMBING UPON A TROPHY OF SOME PAST CONFLICT. (A.P.)



THE BRITISH AMBASSADOR AND THE JAPANESE FOREIGN MINISTER, WHO WORKED OUT THE "TOKYO FORMULA" WHEREBY BRITAIN RECOGNISED THAT THE JAPANESE FORCES IN NORTH CHINA HAD "SPECIAL REQUIREMENTS." *(Wide World.)*

As regards affairs in the Far East, British attention has been fixed upon the discussions between Sir Robert Craigie, the British Ambassador in Tokyo, and Mr. Arita, the Japanese Foreign Minister. A formula stating that H.M. Government recognised that the Japanese forces in China had special requirements in the way of insuring their own security and maintaining public order in regions under their control, and stating that H.M. Government had no intention of countenancing any act or measures prejudicial to the attainment of these objects of Japanese forces was agreed upon on July 23. On July 31,

Mr. Chamberlain declared that the Tokyo formula denoted no change of policy, or recognition of belligerent rights on the part of Japan, did not betray British interests, nor did it do anything to surrender rights of third parties. He repeated that the Government would not reverse their policy at the request of another Power, and that they had not been asked by Japan to do so.

SIXTY-THREE YEARS OF THE "THE MOST VALUABLE SINGLE



ROYAL PATRONAGE OF THE TELEPHONE IN ITS VERY EARLIEST DAYS IN ENGLAND: AN INSTRUMENT INSTALLED IN MARLBOROUGH HOUSE IN 1878 CONNECTING THE SCHOOLROOM TO PRINCESS ALEXANDRA'S SITTING-ROOM.



THE MARLBOROUGH HOUSE "PHONES" IN USE. THEY HAD BEEN ORIGINALLY MADE ON BOARD H.M.S. "THUNDERER," AND ARE REFERRED TO IN THE GILBERT AND SULLIVAN OPERA H.M.S. "PINAPORE."



THE FIRST INSTRUMENT TO BE USED BY THE POST OFFICE (1851-52)—A BELL RECEIVER AND CROSSLEY TRANSMITTER, THE TRANSMITTER BEING OF THE LOOSE CARBON CONTACT TYPE, THE TELEGRAPH KEY AND NEEDLE GIVING AN AUXILIARY MEANS OF SIGNALLING.

THE telephone was invented in 1876 by Alexander Graham Bell, and the patent he filed for his invention is said to be known as "the most valuable single patent ever issued," since out of it have grown so many others—including very many devices in the radio and the talking pictures. Appropriately enough, a film version of the story of the telephone, which was entitled "The Modern Miracle," commenced its run at the New Gallery on July 16. The first wire transmission of the human voice was dramatic enough for any film. On March 10, 1876, Bell, the telephone's inventor, was

(Continued below.)



A STANDARD POST OFFICE INSTRUMENT OF 1882—A BELL RECEIVER WITH LISTENING TUBES AND GOWER TRANSMITTER, USING EIGHT LOOSE CARBON PENCILS.



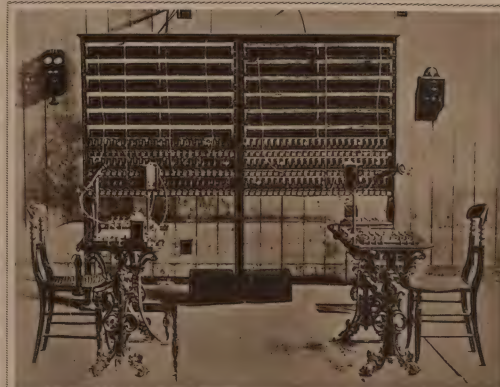
THE FIRST EXCHANGE IN EUROPE SUPPLYING ELECTRICAL POWER FOR SIGNALLING AND SPEAKING CIRCUITS—BATTERIES BEING HITHERTO FITTED ON SUBSCRIBERS' PREMISES: THE BRISTOL EXCHANGE OF 1900.



IN GENERAL USE IN ENGLAND AND AMERICA BY THE EARLY YEARS OF THE TWENTIETH CENTURY: A BELL RECEIVER OF 1905 WITH CENTRAL OR COMMON BATTERY.

experimenting in his study. (He had, a year before, transmitted the sound of a twanging clock-spring by wire.) As he worked, he upset a bottle of sulphuric acid over his legs. The acid, of course, burned; he shouted to his assistant, "Mr. Watson, come here. I want you." Mr. Watson was in another room, his ear at the receiver, awaiting an experiment's result—and Bell's cry for help carried down the transmitter to the receiver. The following year, Bell's telephone was exhibited before the British Association at Plymouth (1877). In 1878 Bell visited England on his wedding-trip—he married the daughter of Gardiner G. Hubbard, one of his main financial backers—and Queen Victoria congratulated him on his invention's success. Bell presented her with a pair of ivory telephones, at the same time, approximately, as those from the "Thunderer" were installed in Marlborough House. Edison was also working

TELEPHONE, FROM 1876 TO 1939— PATENT EVER ISSUED."



THE FIRST LONDON TELEPHONE EXCHANGE, OPENED AT 36, COLEMAN STREET, E.C., IN 1879, AND CONNECTING ONLY THIRTEEN SUBSCRIBERS.



THE FIRST TYPE OF TELEPHONE IN ENGLAND WITH A CENTRAL OR COMMON BATTERY: A TYPE USED IN BRISTOL IN 1900.

subscribers' premises was supplied by the exchange. Previously, batteries to work the telephones were fitted at the subscribers' premises. Bell's claim to be the inventor of the telephone did not go undisputed; various experimenters were working towards the same end during the nineteenth century. Alexander Graham Bell was born in Edinburgh in 1847, and worked for a time in London as a teacher of music and elocution. Ill-health forced him to leave England, and he went to Canada, later to settle in the United States. He died in 1922.

(Photographs by Sport and General.)



AN EARLY INSTRUMENT USED BY THE TELEPHONE COMPANY IN ENGLAND IN 1879-80, WHICH CONSISTED OF TWO BELL RECEIVERS, ONE BEING USED AS A TRANSMITTER.



ANCIENT AND MODERN: A LOCAL BATTERY, MAGNETO RINGING, TABLE TELEPHONE OF 1890; AND A MODERN LOUD-SPEAKING INSTRUMENT—THE LOUD-SPEAKER SWITCHING AUTOMATICALLY INTO CIRCUIT AND VICE-VERSA AS THE CALLER'S VOICE CEASES.

on the telephone, and had invented (1877-8) the carbon transmitter; and a few months after the Bell exchange illustrated above had been opened, an Edison exchange was opened close by in Lombard Street, connecting ten offices. A year later, the Edison and Bell companies combined, to form the United Telephone Company. Within six months, however, the Post Office claimed, successfully, that the Telephone Company was an infringement of their electric telegraph monopoly, bought by the Act of 1888. Henceforth licences were issued on a royalty basis to private telephone companies. (It was not till 1911 that the Post Office took over Great Britain's telephone systems.) In 1891, London and Paris became linked by telephone, the first communication being from the Prince of Wales to the French President. In appearance, the early telephone receivers did not differ by as much as might be expected from those of today. The headsets worn by operators of 1880, however, weighed in the neighbourhood of six pounds; to-day they weigh seventeen ounces. The switchboard illustrated above, which was installed in Bristol in 1900, marked a great advance, being the first in Europe in which the electrical power to operate the signalling and speaking circuits at

(Continued above.)



AN EARLY TYPE OF MAGNETO TELEPHONE—STILL TO BE FOUND IN REMOTE COUNTRY DISTRICTS.



INTRODUCED TO GIVE COUNTRY FOLK THE ILLUSION OF SECRECY: THE "HORSE COLLAR" INSTRUMENT, WHICH HAD A SHORT LIFE IN RURAL DISTRICTS IN THE EARLY TWENTIETH CENTURY.

THE FORMIDABLE FLEET BRITAIN IS MANNING IN ADDITION TO HER REGULAR SQUADRONS: SHIPS OF THE RESERVE.



H.M.S. "EMERALD" - CRUISER



H.M.S. "CONQUEROR" - AIRCRAFT CARRIER



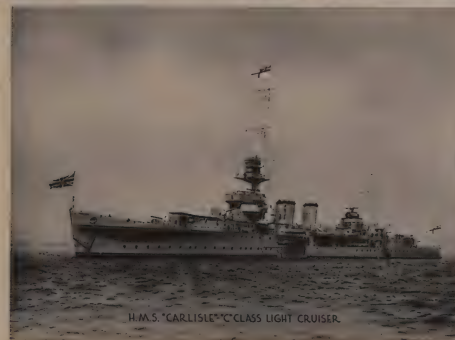
H.M.S. "EFFINGHAM" - CRUISER



H.M.S. "ESCORT" - E CLASS DESTROYER



H.M.S. "VALENTINE" - V CLASS DESTROYER



H.M.S. "CARLISLE" - C CLASS LIGHT CRUISER



H.M.S. "DUNEDIN" - D CLASS LIGHT CRUISER



H.M.S. "ADVENTURE" - MINE-LAYING CRUISER



H.M.S. "WINDSOR" - W CLASS DESTROYER



H.M.S. "PEGASUS" - SEAPLANE CARRIER

SOME OF THE WARSHIPS MANNED BY RESERVISTS, WHICH THE KING WILL SEE IN HIS INSPECTION OF THE RESERVE FLEET AT WEYMOUTH: A VARIETY OF TYPES, INCLUDING AN AIRCRAFT-CARRIER.

10,500 Naval Reservists have been called up, and by the time this issue appears, the entire Reserve Fleet of 130 vessels will probably be in commission, ready for the inspection which the King will hold in Weymouth Bay on August 9. The Reserve Fleet will remain manned and will carry out exercises until towards the end of September. Only once before in peace time has the Reserve Fleet been brought to full commission for exercises and training.

That was in 1924. But the present occasion is believed to be the only time when a monarch has inspected a Reserve Fleet by itself. The vessels illustrated on this page are almost certain to be at Weymouth, although, of course, plans may be changed at the last moment. The "Effingham" has been flying the flag of Vice-Admiral Sir Max Horton, commanding the Reserve Fleet, and the cruiser "Cardiff," it is understood, is to fly the flag of Vice-

Admiral Raikes, who commands the Destroyer Flotillas of the Reserve Fleet. The calling-up of such large numbers of Naval Reservists has provided excellent practice for naval staffs through the country. The experience gained during the mobilisation last September and the realisation that it is undesirable, owing to air attack, for large numbers of men to be kept in the manning depôts for longer than it is absolutely necessary, have led to a new refinement

of organisation designed to pass the men through the depôts and out to the Fleet in the minimum of time. The men called up include about 800 of the Royal Naval Volunteer Reserve—not seamen by profession, but civilians who have done special naval training; roughly the same number of the Royal Naval Reserve—merchant seamen and fishermen; 100 men of the Signals Branch, Royal Naval Reserve; and 130 Royal Naval Volunteer Wireless Reservists.

A WINDOW OPEN ON EUROPE: EVENTS FROM NEAR AND FAR IN PICTURES.



FOUR MEMBERS OF THE TURKISH AIRWOMEN'S SQUADRON WHICH IS TO VISIT LONDON IN OCTOBER, IN SIX BOMBING 'PLANES, DURING A TOUR OF EUROPE'S CAPITALS.

The Turkish airwomen's squadron will be commanded by Lieutenant Sabiha Guektchen, an adopted daughter of the late Kemal Ataturk. The Hatay was formally handed back to Turkey on July 23, in an official ceremony at Antioch, when, in the presence of French and Turkish troops, and a great throng of people, the French flag, which had flown over the barracks for twenty-one years, was solemnly hauled down and the Turkish flag hoisted in its place. (Top, right) General Muzaffer, of the Turkish Army, taking the salute as the Turkish troops marched into Hatay for the first time since 1918. (S. and G., and Keystone.)



CELEBRATED WITH GREAT REJOICING ALL OVER TURKEY: TROOPS MARCHING INTO HATAY, FORMERLY KNOWN AS THE SANJAK OF ALEXANDRETTA, HANDED BACK TO TURKEY ON JULY 23, AFTER THE AGREEMENT WITH FRANCE.



ABSORBING GREATER POWER AND SO PERMITTING CLOSER-SPACED ENGINES: A NEW 4-BLADED PROPELLER.

Curtiss Wright Corporation of Clifton, claim to have developed the first four-bladed controllable propeller of American aviation. The four-bladed propeller absorbs greater power than the three-bladed, allowing of a decrease in the present diameter of airscrews, thus permitting the closer placing of engines in multi-engined aircraft. (Planet.)



TO MARK THE RETURN OF THE FORMER SANJAK OF ALEXANDRETTA: THE HATAY FLAG—CLOSELY RESEMBLING THE TURKISH—CEREMONIALLY HAULED DOWN.



THE STATUE OF THE LATE KING ALBERT ERECTED AT THE BEGINNING OF THE NEW ALBERT CANAL AT LIÈGE.

On July 30, King Leopold of the Belgians unveiled a statue, nearly 47 ft. high, of his father, the late King Albert, which has been erected at the confluence of the Albert Canal and the Meuse. The height of the tower against which the statue is set is 135 ft. The King was accompanied by his mother, Queen Elizabeth, and his three children. (Planet.)



THE COLLISION OFF THE CORNISH COAST BETWEEN THE "GRANGESBERG" (4575 TONS) AND THE FRENCH TANKER "SUNIK" (5009 TONS), IN WHICH TEN LIVES WERE REPORTED LOST: (LEFT) THE "GRANGESBERG," BADLY BURNED, AT FALMOUTH; AND (RIGHT) THE "SUNIK," WHICH, BEARING 5000 TONS OF PETROL, BURNED FOR SEVERAL DAYS IN THE OPEN SEA. The "Sunik," the French tanker which collided in the fog with the Swedish steamer "Grangesberg" on July 27, continued to burn fiercely for several days afterwards—the sea being darkened for miles by the smoke from her cargo of 5000 tons of petrol. The collision took place thirty miles south-west of the Eddystone lighthouse, off Falmouth. The "Grangesberg" limped into Falmouth badly damaged; and lifeboats put off to rescue the crew of the tanker. Ten lives were reported to have been lost from the "Sunik," the survivors being taken to hospital suffering from shock. One said: "... Suddenly there was a crash ... there was a flash and an explosion, and in a moment we were surrounded by flames." Another described how, for a radius of half a mile, the sea was a blazing cauldron, and added: "One of our boilers burst. We launched our boat and rowed through a sea of fire." (Photographs by L.N.A. and G.P.U.)

TWO GENERATIONS OF ROYALTY: PUBLIC ACTIVITIES—AND HOLIDAYS.



ROYAL CHILDREN AT THE SEASIDE—WITHOUT SAND: PRINCE EDWARD AND PRINCESS ALEXANDRA OF KENT PLAYING ON THE PEBBLE BEACH AT ST. MARGARET'S BAY.



AFTER A LOAD OF SAND HAD BEEN BROUGHT AND LAID IN A SPECIAL FRAME IN THE SHINGLE: PRINCE EDWARD AND PRINCESS ALEXANDRA ENJOYING THEMSELVES WITH SPADES AND PAILS.

Prince Edward and Princess Alexandra of Kent have gone for their summer holiday to a house on the edge of the sea at St. Margaret's Bay, Kent. The beach there is shingle, but as our photographs show, a sand-pit was provided for the children. Prince Edward is now three, and his sister two. The Duke and Duchess of Kent recently went to the Continent for a touring holiday. (Photographs by Keystone and B.I.P.)



THE QUEEN WITH HER OWN REGIMENT: HER MAJESTY VISITING THE MEN'S FAMILIES AND HERE CONGRATULATING SERGEANT-MAJOR DOLBY ON HIS SIXTEEN-MONTHS-OLD DAUGHTER.

On July 29 the Queen presented a new standard to the Queen's Bays (2nd Dragoon Guards), of which she is Colonel-in-Chief. The regiment is now a light tank regiment, and when the Queen presented the standard a new form of salute devised for tank regiments was given for the first time—the guns in the turret being swung round and dipped in salute as the tanks approached the saluting-



HER MAJESTY TAKING THE NEW SALUTE—BY DIPPING GUNS—DEvised FOR TANK REGIMENTS, AND GIVEN FOR THE FIRST TIME BY THE QUEEN'S BAYS, OF WHICH SHE IS COLONEL-IN-CHIEF.

base. On parade were nearly 60 tanks and trucks and a detachment of despatch riders with motorcycles. Addressing the regiment, the Queen said: "I congratulate you on your smartness and bearing, especially as I believe this to be the first occasion that a unit of the mechanised cavalry has taken part in a ceremony of this nature." In the afternoon her Majesty spent much time with the wives and families of the officers and men. (Photographs by G.P.U. and P.N.A.)



SEEING THEIR OLD HOME AGAIN AND SURROUNDED BY THEIR OWN TOYS AND FURNITURE—THE LITTLE PRINCESSES AT THE EXHIBITION, AT 145, PICCADILLY.

Princess Elizabeth and Princess Margaret visited the Exhibition of Royal and Historic Treasures at their old home—145, Piccadilly—on July 28, and in our picture are seen in Princess Elizabeth's former room, surrounded by exhibits lent, in large part, by themselves. Thus the bassinette cot near which the Princesses are standing was used by them both, as indeed was most of the furniture. The exhibition is to remain open till September 27. (Photograph by L.N.A.)



KING GEORGE WITH THE WEST INDIES CRICKET TEAM: HIS MAJESTY SHAKING HANDS WITH THE PLAYERS AT THE OVAL, WHERE THEY DEFEATED SURREY BY 7 WICKETS.

The King was present at the Oval on July 26 for the match between Surrey and the West Indies. At the day's close of play the West Indies had scored 331 runs for four wickets. During the luncheon interval the players lined up in front of the pavilion and his Majesty shook hands with them. The following day Surrey made 237 for five, but the match finished (on the 29th) with the West Indies victorious by a margin of seven wickets. (Central Press.)

EMBRACING THE WORLD: THE CAMERA'S EYE AT HOME AND OVERSEAS.



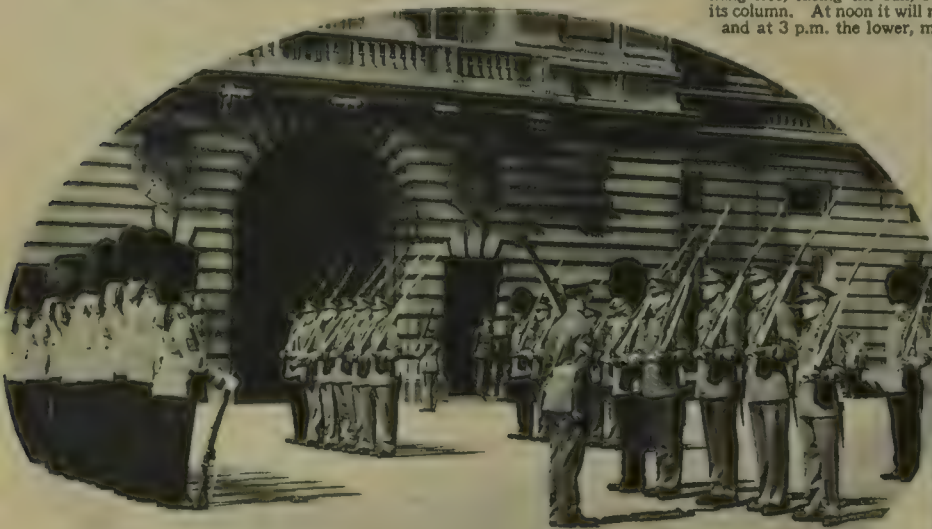
CLAIMED TO BE THE FASTEST IN THE WORLD: A MOTOR TORPEDO-BOAT WITH A SPEED OF 46 KNOTS—DEMONSTRATED IN SOUTHAMPTON WATER.

What is claimed to be the fastest motor torpedo-boat in the world was demonstrated at Southampton on July 28. It is 20 metres in length, has four engines, and comfortable quarters for two officers and four men. The vessel carries two torpedoes, and six 50-kg. depth-charges, and is equipped with a smoke-screen installation. (G.P.U.)



THE TRAVELS OF THE ALBANIAN ROYAL EXILES: EX-QUEEN GERALDINE MAKING A WAYSIDE PURCHASE OF FUR SLIPPERS IN NORWAY.

It was recently reported that ex-King Zog of Albania and Queen Geraldine were on their way to England, where permission to take up residence had been granted them. The above photograph was taken during a wayside halt in Norway, which they have been visiting after a brief stay in Sweden and Poland.



PROVIDING, FOR THE FIRST TIME, THE KING'S GUARD AT BUCKINGHAM PALACE: THE 2ND BATTALION, THE DUKE OF CORNWALL'S LIGHT INFANTRY TAKING OVER.

For the first time in their history, the 2nd Battalion of the Duke of Cornwall's Light Infantry provided the King's Guard at Buckingham Palace on July 30. This they will continue to do until September 14. The Guards are frequently relieved in August by line regiments—the King's Guard being then clad in khaki. The 2nd Battalion dates from 1741, and was known as "Murray's Bucks," In 1881 it assumed its present title. (S. and G.)



ERECTED AT A FAMILIAR ROAD JUNCTION ON WIMBLEDON COMMON: THE A.R.P. WARDENS' POST RECENTLY INSTALLED AT TIBBETT'S CORNER.

An A.R.P. Wardens' shelter has recently been erected on one of the busiest parts of Wimbledon Common, the roundabout at Tibbett's Corner. The purpose for which the post is intended is for reporting to control headquarters details of A.R.P. work during an emergency. (Topical.)



THE OLDEST TIMEPIECE IN THE ENGLISH-SPEAKING WORLD: A SAXON 10TH-CENTURY POCKET SUNDIAL FOUND AT CANTERBURY. (2 9/16 IN. LONG.)

On the faces are inscribed the abbreviated names of the months in pairs. At the top of each of the three columns is a hole for the pin when in use, and below each hole two spots. To ascertain the time, after inserting the pin in the hole appropriate to the month, the dial must hang free, facing the sun, so that the shadow falls down its column. At noon it will reach the higher spot, at 9 a.m. and at 3 p.m. the lower, marking the hours of services.



IN COMMEMORATION OF THE 700TH ANNIVERSARY OF ITS FOUNDATION: A RELIGIOUS SERVICE IN THE RUINS OF NETLEY ABBEY.

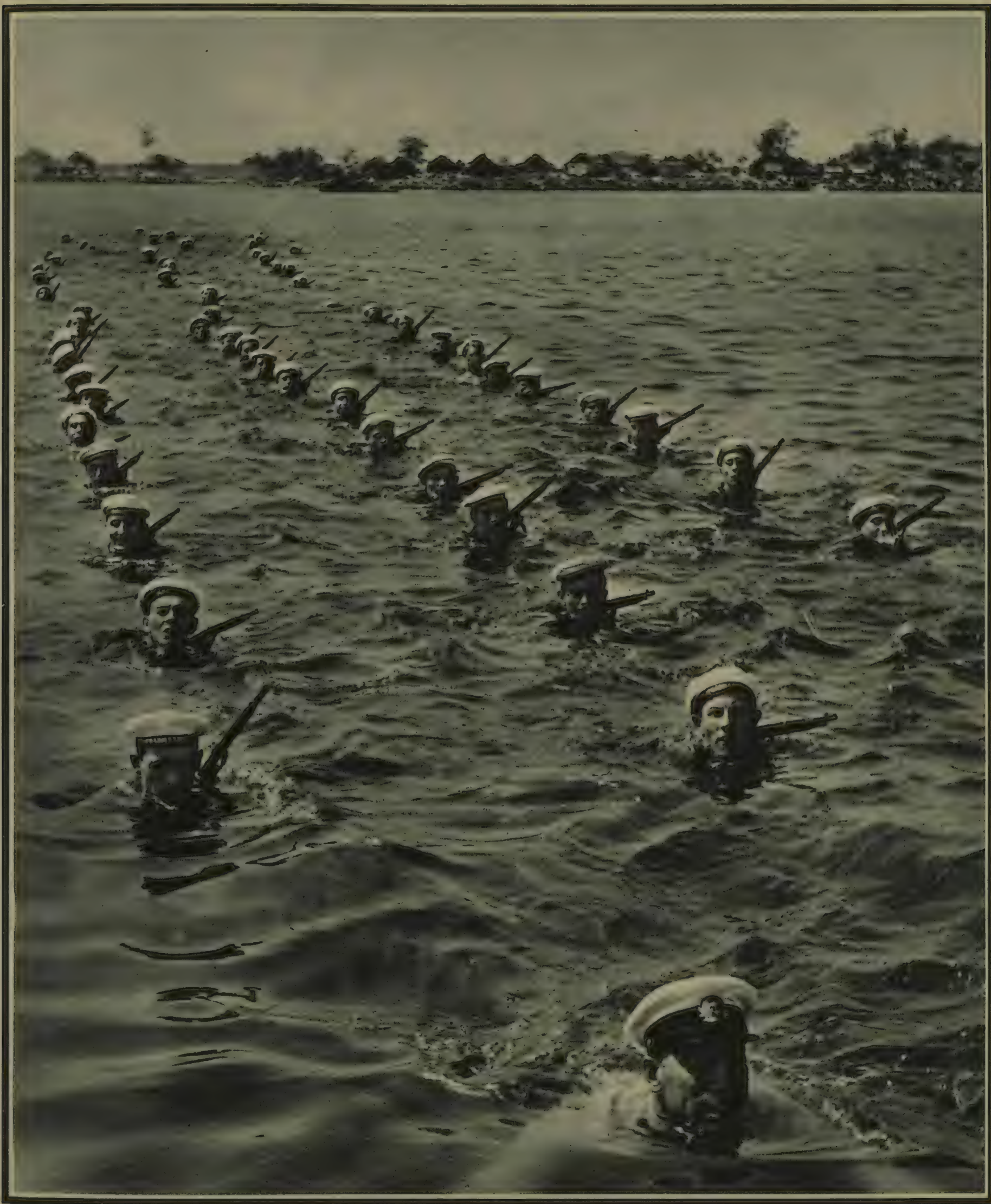
The Bishop of Winchester, Dr. Cyril Garbett, officiated at a service held on July 30 in the ruins of Netley Abbey, to commemorate the 700th anniversary of its foundation by the Benedictine Order. Some two thousand people attended the service, which took place in brilliant sunshine, in addition to the clergy, choir and servers. (Fox.)



AN AUSTRALIAN MEMORIAL SERVICE FOR BRITISH, AMERICAN AND FRENCH SUBMARINE VICTIMS: HELD AT THE WAR CENOTAPH IN MARTIN PLACE, SYDNEY.

The widespread popular grief at the loss of life as the result of the disasters which overtook the submarine arm of the American, British, and French navies is epitomised by this photograph which has reached us from Australia, showing the scene at the service conducted at the Cenotaph to the Australian dead in the Great War in Martin Place, Sydney, in memory of those who died in the "Squalus," the "Thetis," and the "Phénix" submarines. (S. and G.)

A NAVAL SWIMMING FEAT ON SOVIET RUSSIA'S FIRST "NAVY DAY."



AT HOME IN THEIR OWN ELEMENT: A LANDING-PARTY OF SOVIET SAILORS, HEADED BY AN OFFICER, WHO WON A 400-METRE RACE, SWUM IN FULL EQUIPMENT, DURING "NAVY DAY" CELEBRATIONS AT MOSCOW.

An unusual amount of publicity has recently been devoted in Russia to the Soviet Navy, although this was formerly regarded as the Cinderella of the Russian services. This new emphasis on sea power was given public effect by the celebration of "Navy Day" throughout Russia on July 24, following upon the enormously increased defence expenditure, most of which was for naval construction. A review of the Baltic Fleet was held in Leningrad and Kronstadt, the ships having just returned from a cruise round Gotland. "The Times" correspondent in Moscow observed that though, during the Great War, the immense strength of the German Fleet reduced the Russians to

the defensive in the Baltic, the situation was different now, and that Russia probably aspired to commanding at least the northern part of that sea. On the Russian "Navy Day" Flag Officer Kuznetsov, Commissar of the Navy, made a highly significant speech, in which he said the Soviet Union had more submarines than any other country in the world and considerably more than Germany and Japan put together. It has long been known that the Russians had constructed a great submarine fleet. Jane's "Fighting Ships" put this at a total of at least 134 last year, with others building. A Soviet Battle Fleet for the High Seas is also now being projected. (Planet.)

IRISH OUTRAGES IN ENGLAND IN 1884-85: FENIAN DYNAMITING.



A FENIAN OUTRAGE OF OVER FIFTY YEARS AGO—THE WRECKAGE CAUSED BY DYNAMITE IN SCOTLAND YARD IN 1884; THE EXPLOSION OCCURRING A FEW MINUTES AFTER THAT AT THE JUNIOR CARLTON CLUB (SEE BELOW).



PROVIDING AN ASTONISHING PARALLEL TO THE OUTRAGE ON THE SAME STATION ON JULY 26, 1939: VICTORIA STATION AFTER THE FENIAN DYNAMITING IN 1884—THE BOMB BEING LEFT IN A SUIT-CASE IN THE CLOAK-ROOM.



THE OUTRAGE AT THE JUNIOR CARLTON CLUB—THE BACK AREA OF THE FAMOUS CLUB AFTER AN EXPLOSION IN MAY 1884.



FORESHADOWING THE ATTACK ON HAMMERSMITH BRIDGE ON MARCH 29, 1939—THE ATTEMPT TO BLOW UP LONDON BRIDGE ON DECEMBER 13, 1884.



A BEEFEATER DIRECTING A FIREMAN'S OPERATIONS IN THE BANQUETING-HALL IN THE TOWER AFTER THE DYNAMITE OUTRAGE OF JANUARY 1885.



OF PARTICULAR INTEREST IN VIEW OF THE RECENT THREAT TO BLOW UP THE HOUSES OF PARLIAMENT: THE RESULTS OF THE TWO EXPLOSIONS WHICH TOOK PLACE IN THAT BUILDING ON THE SAME DAY AS THE TOWER OUTRAGE, IN 1885, AND CAUSED DAMAGE ESTIMATED AT £10,000—(LEFT) THE BAR OF THE HOUSE; (CENTRE) THE LOBBY; AND (RIGHT) THE FLOOR OF THE HOUSE, WITH "THE ILLUSTRATED LONDON NEWS" ARTIST SKETCHING THE DÉBRIS FROM MR. GLADSTONE'S SEAT.

"On Monday night, at three minutes past one o'clock, an explosion, probably caused by dynamite and supposed to be the result of another criminal attempt of the Fenian conspirators to frighten the people of London, took place at the Victoria Railway Station, Westminster. . . . If one substitutes "I.R.A." for "Fenian," this excerpt from "The Illustrated London News" of March 1, 1884, would well serve to describe the Victoria Station outrage on July 26, 1939. On

each occasion the injured—numbering two in the outrage of 1884, and five in that of July 26—were treated in the St. George's Hospital. The methods employed were also similar: an explosive being left in a suit-case in the cloak-room. It is interesting, too, to read that on the night of the earlier Victoria Station outrage, "a sound of ticking . . . was heard in the cloakroom; but it is said there was a case of clocks." All the outrages illustrated on this page (from contemporary

(Continued opposite.)

IRISH OUTRAGES IN ENGLAND IN 1939: I.R.A. BOMB-EXPLOSIONS.



THE I.R.A. OUTRAGE AT VICTORIA STATION WHICH TOOK PLACE ON JULY 26, AND WHICH VIVIDLY RECALLS THE FENIAN OUTRAGE AT THAT STATION IN 1884—A VIEW OF THE DAMAGED CLOAK-ROOM. (Graphic.)



"SPLINTERED BOARDS [AND] GLASS . . . MIXED WITH FURNITURE AND PASSENGERS' LUGGAGE"—A DESCRIPTION FROM "THE ILLUSTRATED LONDON NEWS" OF MARCH 1, 1884, APTLY FITTING THE WRECKAGE AFTER THE OUTRAGE AT VICTORIA. (Wide World.)



VICTIMS OF THE KING'S CROSS OUTRAGE OF JULY 26: THE RECENTLY MARRIED DR. AND MRS. CAMPBELL—DR. CAMPBELL BEING KILLED, AND HIS WIFE INJURED. (Edinburgh Picture News.)



THE RESULT OF THE EXPLOSION AT KING'S CROSS—POLICE INSPECTING THE SCENE FOR CLUES; WITH MEN'S UNCLAIMED HATS LYING FORGOTTEN ON THE FLOOR. (Central Press.)



PASSENGERS' LUGGAGE BEING EXAMINED AT VICTORIA STATION BEFORE BEING DEPOSITED—THE BOMB WHICH CAUSED THE OUTRAGE BEING APPARENTLY LEFT IN A SUITCASE. (G.P.U.)



SIFTING THE DÉBRIS OF THE WRECKAGE FOR POSSIBLE CLUES AT KING'S CROSS LEFT-LUGGAGE DEPOT AFTER THE OUTRAGE IN WHICH 15 WERE INJURED AND ONE KILLED. (A.P.)

Continued.] issues of "The Illustrated London News") took place in 1884-5; and as in most of the recent I.R.A. explosions, occurred in groups. Thus the explosions at Scotland Yard and the Junior Carlton Club took place within a few minutes of each other; as did those at the House of Commons and the Tower. Coming down to 1939, the outrages at Victoria Station and King's Cross took place only two days before the Prevention of Violence Act became law, and are among the

most serious of the explosions caused by the I.R.A. The death of Dr. Campbell is the second caused by I.R.A. explosions, the previous one being at Manchester. Sir Samuel Hoare, speaking in the House on July 24, announced that since January there had been 127 outrages; the Government, he said, had reliable information that the campaign was being stimulated by foreign organisations. Sir Samuel also stated that there was a plot to blow up the Houses of Parliament.

PROMINENT PEOPLE IN THE PUBLIC EYE IN ENGLAND AND ABROAD.



SIR LANCELOT OLIPHANT.

His appointment as Ambassador to Belgium and the Grand Duchy of Luxemburg was announced on July 25. Will succeed Sir Robert Clive, who is to retire towards the end of the year. Has been Deputy Under-Secretary of State for Foreign Affairs since 1936; entered the Foreign Office in 1903.



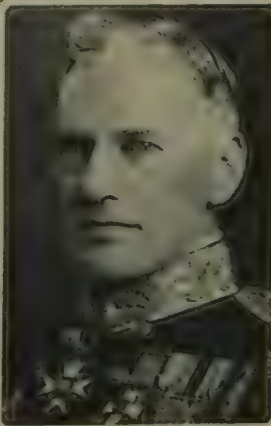
MR. C. HOWARD SMITH.

The new British Minister to Denmark, whose appointment was announced on July 27. Was formerly an Assistant Under-Secretary of State in the Foreign Office, which he entered in 1912. Will succeed Sir Patrick Ramsay, who is to retire this autumn.



MR. PAUL CAIRN VELLACOTT.

Appointed Master of Peterhouse, Cambridge, in succession to the late Prof. H. W. V. Temperley. Has been Headmaster of Harrow School since 1934. Served during the war in France, 1914-18, in the 7th Bn. South Lancashire Regt., mentioned in despatches, and awarded D.S.O. He is forty-eight.



ADMIRAL SIR REGINALD P. ERNLE-ERLE-DRAX.

To lead the British Military Mission to Moscow, which is complementary to the French Mission. Commander-in-Chief, Plymouth Station, 1935-38, and previously of America and West Indies Station. Present at Heligoland, Dogger Bank, and Jutland.



MAJOR-GENERAL T. G. G. HEYWOOD.

A military member of the British Military Mission to Moscow. Commander, Royal Artillery, Aldershot Command. Served during the Great War in France, Gallipoli and Macedonia. Military Attaché at Paris 1932-36. Speaks Russian.



AIR-MARSHAL SIR CHARLES BURNETT.

One of the three officers chosen to constitute the British Mission to Moscow. Fifty-seven. Air Officer Commanding Training Command R.A.F. since 1936. Fought during the Great War with the Royal Flying Corps in France and the Middle East.



DR. WILLIAM JAMES MAYO.

Died on July 28; aged seventy-eight. Dr. Mayo, one of America's foremost surgeons, conducted, with his brother, who died on May 26, the famous Mayo clinic at Rochester, Minnesota. The hospital began with 13 patients; by 1925 it had over 20,000.



THE FIRST VISIT TO SOUTHERN AFRICA OF THE HEAD OF ANY STATE: GENERAL CARMONA, WITH MME. MACHADO, AT LOURENÇO MARQUES.

General Carmona, President of the Portuguese Republic, arrived at Lourenço Marques, the capital of the Portuguese East African Colony of Mozambique, on July 16 on the first stage of his official tour of the Portuguese Colonial Empire. In our illustration the President is seen leading in Mme. Machado, wife of the Colonial Minister, to a ball at Government House. He has accepted an invitation to visit the Union of South Africa.



LORD SINHA.

Second Baron Sinha of Raipur. On July 26 the Committee of Privileges of the House of Lords allowed his claim to the right to a seat in the Lords. Succeeded his father, 1928, who was the only Indian to be raised to the Peerage of the United Kingdom.



M. WALTER THURNHEER.

The new Swiss Minister to London, who will succeed M. Paravicini, Swiss Minister in London since 1920, who is retiring at the end of the year. His appointment was announced on July 21. M. Thurnheer previously represented Switzerland in Tokyo.



MR. MORTON SELTEN.

The character-actor on stage and screen, who died on July 27; aged seventy-nine. Only a few hours before his death Morton Selten (whose real name was Stubbs) was playing at Denham Studios in "The Thief of Bagdad."



SHOWING NO ILL-EFFECTS AFTER HIS FORCED LANDING IN LANCASHIRE: THE AIR MINISTER WITH SIR EDWARD CAMPBELL, WHO WAS SEVERELY SHAKEN.

Our illustration shows Sir Kingsley Wood, Secretary of State for Air, on arrival at Euston with his Parliamentary Private Secretary, Sir Edward Campbell, M.P., on July 29, after their unnerving experience at Kirkby-in-Furness, when the R.A.F. aeroplane, in which they were flying to Belfast on a visit of inspection to the reserve units in Northern Ireland, made a forced landing owing to bad weather conditions.



RELEASED BY ARAB RAIDERS AFTER A WEEK'S CAPTIVITY: THE REV. GERALD GOLDNER (LEFT) PHOTOGRAPHED WITH HIS FATHER IN JERUSALEM.

On July 19 Dr. Jacob Goldner and his son, the Rev. Gerald Goldner, American missionaries in Palestine, were kidnapped near the Dead Sea by armed Arab raiders, who carried them captive into the Hebron hills. Dr. Goldner was later allowed to go in order to negotiate the ransom of 5000 pieces of silver (about £500) demanded for his son's release, which, however, was granted by the captors unconditionally on July 25.

BOOKS OF THE DAY.

By CHARLES E. BYLES.

WHEN history shows signs of repeating itself in one of its most disastrous phases, we should study in retrospect the rejected advice of those who foresaw the coming troubles, to see whether it might help to prevent another disaster. A case in point occurs in "THE LIFE OF JAMES RAMSAY MACDONALD" (1866-1919). By Lord Elton. With 21 Illustrations (Collins; 18s.). Here we have the first volume of an important and highly readable biography portraying, from close personal knowledge, one of the most remarkable self-made men in modern politics. It is frankly the work of an adherent, but, as befits the author's intellectual distinction, it is free from undiscriminating bias. Besides having collated masses of other material, the biographer has been able to include a number of MacDonald's unpublished letters.

Lord Elton's work, it should be mentioned, has earned the recommendation of the Book Society. Indicating its scope and purpose, he writes: "This is not an 'official' life of Ramsay MacDonald. Such a definitive book may one day, I hope, be written by his son, my friend, Mr. Malcolm MacDonald, the present Secretary of State for the Colonies. But in the meantime there seems to be a need for an attempt to recount and interpret a career which has perhaps been more thoroughly, and indeed sometimes more deliberately, misunderstood than any in our recent political history. . . . The present volume carries the story down to the Peace of Versailles. . . . We see MacDonald's genius for moderation shaping the early British Labour Party. . . . There follows his lonely and desperate struggle throughout the war, not to hamper the national effort, but to ensure a peace which should be permanent. The crucial significance of these efforts, then so completely misunderstood . . . time is now most poignantly revealing."

For the general reader not deeply concerned with party politics, MacDonald's efforts for a European settlement form the main interest of the book. As proof of his personal courage, a notable passage describes his adventure at the front in company with General Seely (now Lord Mottistone). The biographer refutes the charges made against him of "conscientious objection, Tolstoyan pacifism, and anti-Nationalism. . . . The core of MacDonald's creed," he declares, "was that somebody must build up a public opinion which would be morally and mentally prepared for the supreme test of peacemaking after victory. If that were not done, the war would be lost, however completely the soldiers might win it." Lord Elton has arrived at his conclusions after a thorough study of the evidence. "For my own part," he writes, "during the war, as an obscure subaltern, I was emphatically a Lloyd George, and not a MacDonald, man, and may claim to have come to examine this phase of MacDonald's history with particular detachment. But after reading an immense quantity of his speeches and writings of this time, the overwhelming impression left on my mind is the prodigious gulf between the world's notion of him and the man himself. All through the war, what he had stood for was simply this—a lasting peace."

It is in MacDonald's speeches at Berne and Amsterdam, during international Labour conferences held at the time of the treaty discussions at Versailles, where Labour's voice was little regarded, that his warnings against a vindictive peace bear most closely on the present situation. Commenting upon them, Lord Elton says: "The long struggle was over then. The men who held the destiny of the world in their hands had rejected almost everything he had striven for. The war had saved Europe from the dictatorship of a militarist oligarchy in Prussia. The Peace was to ensure that it would revive."

Many statesmen at the height of success and power have fallen into discredit or obscurity, but the subject of the present work did not suffer the fate feared by the poet who implored the fickle goddess—

At least caress me not before
Thou break me on thy wheel.

He rather reversed the process. "This volume closes," writes the author, "with MacDonald apparently at the lowest ebb of his fortunes. His long effort to ensure a clement peace had failed. . . . Execrated by the general public, distrusted or disowned by powerful sections of his

own Party, it was widely believed, and hoped, that he would never return to public life. Yet in less than five years he was Prime Minister." This astonishing change will be traced in a second volume, to which readers of the first will undoubtedly look forward with keen anticipation.

One element in MacDonald's make-up as a statesman that is sometimes overlooked—his knowledge of the world outside his native land—is emphasised by an interesting tribute in another noteworthy political biography, in which we read: "He travelled so much and had seen so many foreigners that he had acquired that rare gift—an International Mind—and in the Foreign Office and in his general conduct of affairs he inspired foreigners with the sense that he understood them as none of his predecessors had done." Such was the dictum of an eminent

organisation of the Expeditionary Force, as far back as 1907, which gave it its quality. The seven years of training it received in the formations in which it fought in the war, under the men who led it in war, gave it a cohesion and character such as no other British Military Expedition had ever had when it left our shores. Therefore the claim made for him by his family on his tombstone that 'in fashioning her army he rendered invaluable aid to his country in her hour of direst need' is a just claim."

An indirect link with the next book on my list is provided by one of Lord Haldane's allusions to another famous contemporary statesman who, like himself, became Lord Chancellor. Referring to the Irish crisis of 1921, Sir Frederick Maurice writes: "In the summer the Government opened negotiations with the leaders of Sinn Féin, which led to a settlement in December. When the negotiations began Haldane wrote to his mother: 'I am assured that the leader in insisting that the time has come to negotiate is Birkenhead, who as "Galloper Smith" was at Carson's right hand in organising the Ulster Army in 1914.'"

The late Lord Birkenhead's elder daughter, who in her famous novel, "Red Wagon," and other writings has made herself the interpreter of circus folk and gypsies, now gives us a delightfully vivacious book of reminiscences, appropriately entitled, "LIFE'S A CIRCUS." By Eleanor Smith. With 16 Illustrations (Longmans; 12s. 6d.). Although it begins with the startling statement: "I was born dead," this is about the liveliest bit of autobiography that I have ever encountered. The author tells us much about her childhood and school days, experiences in journalism and literature, travels in Spain and the Balkans, and her own contacts with the circus world. Nor is her story devoid of real thrills with more than a spice of danger, as in the account of the escaped tigers among a circus audience, or her interview with a menacing gangster. As might be expected, Lady Eleanor is not much concerned with matters parliamentary, being more at home in the Big Top than in the chamber of oratory beneath Big Ben.

For the purpose of the present article, however, the single chapter devoted to Lord Birkenhead is more in keeping with the other books here noted. It is perhaps natural that his daughter dwells chiefly on his spectacular side. "I often think," she writes, "my father was born out of the century to which, by character, he should have belonged—the late eighteenth century. I can see him so clearly as a Regency buck. . . . He loved ostentation and he could never keep money. . . . He was recklessly courageous. When he visited Dublin, in spite of remonstrances from most of his friends, he was a hunted man, and he knew it. But he refused to ride in an armoured car, and, to the despair of his unfortunate detectives, he insisted upon taking his dog 'Jane' for a walk in Phoenix Park. Gunmen were following him, but no shot was fired. . . . Some time afterwards, one of these gunmen was arrested. . . . Referring to my father's visit, the gunman said: 'I could have pumped that black devil full of lead any time I wanted.' 'Why didn't you, then?' 'Oh . . . what the hell? He was a grand fellow—he didn't care a damn!'"

Very illuminating as to the relations between father and daughter, both evidently of impulsive temperament, is the account of their temporary quarrel over the publication of "Red Wagon." He had reproved her for not consulting him in the matter, and, stung by his strictures, she taunted him with his gypsy blood. Their estrangement ended not long afterwards, however, when Lord Birkenhead summoned her abruptly into the library and said: "I'm delighted by your success—really delighted! Winston was here yesterday, and he thinks your book remarkable—he's writing you a letter!" My coldness was not proof against this and I felt myself glowing. 'Oh, Pop, is he really?' My father began fishing in his pocket. 'While I still think,' he said, 'that you will have trouble in living up to this success, I must admit that I'm proud of you, and to mark the occasion, I've brought you this little present. . . . He slipped into my hand a splendid brooch of rubies and diamonds. This brooch was in the form of a caravan: the rubies formed the wagon body; the diamonds the wheel spokes and window. This was typical of my father."



THE LAST OF THE GERMAN WARSHIPS TO BE SALVAGED AT SCAPA FLOW: THE BOW OF THE "DERFFLINGER" BREAKING SURFACE AFTER THE WATER HAD BEEN EXPELLED FROM HER HULL BY COMPRESSED AIR.



AN AERIAL VIEW OF THE WRECK OF THE "DERFFLINGER," ONE OF THE BATTLE-CRUISERS WHICH BOMBARDED SCARBOROUGH AND HARTLEPOOL IN DECEMBER 1914, SURFACING IN SCAPA FLOW ON JULY 24.

On July 24, almost exactly 20 years after she was scuttled, along with the seventy other vessels of the German High Seas Fleet, in Scapa Flow, the "Derfflinger" (26,700 tons) was partially brought to the surface. The "Derfflinger," one of Germany's most remarkable ships, played a prominent part during the war, in the battle-cruiser squadron commanded by Rear-Admiral Hipper. Her engagements included the Battle of the Dogger Bank, on January 15, 1915, shortly after Hipper's raid on Scarborough and Hartlepool; and the Battle of Jutland. She is the seventeenth of the German capital ships to be salvaged, and the last: since Scapa Flow is once more to become a full-scale naval base. The method of salvage has been to seal all methods of ingress, and then to render the hull buoyant by pumping out water and pumping in air. The air-locks seen above the funnels—through which the salvage men have entered and left the ship during the last year—are from 120 to 130 ft. high. Salvage operations on the German ships at Scapa Flow have been going on since 1924, and much of the metal brought up has been used in British naval rearmament; in addition some of the plates of the "Queen Mary" and "Queen Elizabeth" have also come from the same source. By autumn, it is hoped, the "Derfflinger," which was lying bottom-up in 26 fathoms (156 ft.), will be ready to be towed down to Rosyth on the Firth of Forth for breaking up.

colleague who, like him, had suffered abuse and misrepresentation from his own countrymen, but whose genius and patriotism were afterwards abundantly vindicated, and the story of whose career is now continued in "HALDANE, 1915-1928": The Life of Viscount Haldane of Cloan. By Major-General Sir Frederick Maurice. With 8 Illustrations (Faber; 18s.).

This is the second part of a work which is of deep interest not only as the life-story of one eminent alike in law, politics, and philosophy, but especially (being written by a distinguished soldier) as a final recognition of Lord Haldane's achievement in Army reform which proved so valuable in the Great War. In this connection Sir Frederick Maurice writes: "It was Haldane's . . .

TEACHING THE YOUNG IDEA HOW TO SHOOT.

"THE CITIZEN SOLDIER": Foreword by MAJ.-GEN. JOHN HAY BEITH, C.B.E., M.C.*

An Appreciation by SIR JOHN SQUIRE.

MOST people will remember the story of the friend who wouldn't give a bridegroom a book as a wedding present on the ground that "he'd got one already." But even those to whom a shelf is sufficiently well furnished with one book might well make an exception and acquire this new volume, which describes the training and work of the citizen soldier of to-day. For its material will, for an indefinite period, be part of the normal fabric of daily life, and even those of us who are not in training ourselves will be in constant contact with those who are.

This is no stark manual. I will not go so far as to say that it is freely enlivened by delightful anecdotes or that I am tempted to quote many passages because of the eloquence or music of the prose. But the authors have borne in mind that they are writing for human beings, and they have done their best to explain things conversationally and to arouse and satisfy curiosity. The book opens very sensibly with a sketch of our auxiliary forces throughout history—it is not always remembered that neither conscript nor volunteer forces are new things in our history, and that the Crown has always had an undoubted prerogative to require the services of its subjects for the defence of the kingdom. Colonel Evelyn Wood rightly opens his account of the Territorial Army with a tribute to its maker, Lord Haldane, "that very great War Minister," and he is emphatic about the instant service which the Territorials performed during the last war. He quotes Lord French: "It would ill become us as a nation to repeat the errors of 40 or 50 years ago, when we made light of the use and value of a great body of volunteer soldiers. These patriotic men, however, struggling against discouragement and neglect, came steadily on until we have seen them in the present war practically stand between the Nation and disaster. No one can tell what would have happened if those glorious Territorial soldiers had not voluntarily extended their engagements, which bound them to serve only at Home, and filled the gaps in France, Egypt, India, and elsewhere until the new Armies were ready to take the Field." The Government, until an emergency came, was extraordinarily neglectful. Either, one would have thought, we wanted recruits or we did not; and if we did, we would take every possible step to get them. Not at all. Men who had to take their annual holiday in camp were sent for three years in succession to Aldershot, which is the rural equivalent of the Cromwell Road. Money was grudging; and recruiting could be boomed by such accidents as the production of a melodramatic play. After the war we lapsed again into the old casual ways, the result being that, when urgent need came upon us, we had first of all to bring the Territorials up to strength before we could begin increasing the strength. However, the devil is a saint at present; reorganisation is thorough; and the Territorials, with Anti-Aircraft Defences in their charge, are more important than ever.

We come in succession to sections on Infantry Training and Drill, on P.T., on Marksmanship, on anti-aircraft, and every other branch of soldiering, including the latest arms and instruments. It is often said that the elements of the military art remain constant, and we are told here that the first tank was the armoured knight on an armoured horse. But developments have been so rapid that a soldier who had disappeared during the South African War and returned now would know remarkably little

about his job. "It is obvious," says Lt.-Col. W. E. Green, "that the weapon-training alone has been multiplied many times. Before 1914 the soldier was trained in the use of his rifle and bayonet and there he started and finished. Compare the position to-day. He still has his rifle and bayonet, but in addition he has to learn and use the Bren gun, the anti-tank rifle, the two-inch mortar, the grenade, and he has a constant training in anti-gas defence, having to wear his gas mask for long periods on training,

School at Aldershot, is a little manual in itself, and its recommendations taken in gradual doses, might with advantage be followed by many whose sex or age will probably preclude them from military activities other than the donning of gas masks and the descent into shelters. And the volume as a whole certainly has the air of something written while things are being pushed on with unremitting speed and determination. "Every fighting arm of the Service has been remodelled, and war

establishments and war equipment tables have been fixed and issued to enable rapid mobilisation." In the past it has often been said that the shamefully-treated Lord Haldane was the greatest of British War Ministers. It looks to-day as though the title may suitably be bestowed upon Herr Hitler.

We have been shocked into life all the way round. The Editor of *Defence* writes: "When I first joined the Territorial Army in the 'twenties, at a time which may now be looked back upon as the lean years of Territorial Soldiering, establishments were low, units were well below strength, training was on stereotyped lines, and to a great extent of the August 1914 vintage. Even as late as 1934 I galloped into action on the Larkhill Ranges, one of a completely horsed Royal Horse Artillery Battery, swords banging against our horses' flanks, with command calls sounded by the Battery Commander's trumpeter; while in the following year, having transferred to a famous London Rifle Battalion, as acting Transport Officer, trotted up with our limbers just below the crest of a ridge on the rolling Sussex Downs, above Brighton, and the Support Company unloaded their machine-guns. Times, however, have changed; the first months of 1936 saw the birth of the modern Territorial Army, reorganised and re-equipped on the same lines as the Regulars to meet the requirements of modern warfare." And last September, with its feverish scramble, revealed weaknesses which had not been realised until so lately as that. "During the crisis married men had to go off in a hurry and their families were left 'in the air.'" This will not happen again; the Territorial has a pocket-book which contains particulars which will ensure that correct family allowances are paid as soon as the breadwinner leaves home for duty. It is to be hoped that we do not lose impetus if tension decreases. G. K. Chesterton said—perhaps in these pages—that if you wanted to prevent a white wall from going black you had to keep on painting it white. This remark has very wide applications, and should be a national motto in a country whose people's very qualities of good temper and tolerance tend to make them lapse into slackness, refusing "to meet

trouble half-way" and trusting to luck, whenever there isn't a pistol obviously pointed at their heads.

I may add, in conclusion, that this book is so comprehensive and comprehensible that the publishers might well consider (even at the cost of omitting the illustrations), a still cheaper edition for the public (from which most of our citizen soldiers must be drawn) which is, of necessity, unaccustomed to giving five shillings for a book. The young prospective Militiamen, especially, would save themselves and others a good deal of trouble by reading it before enrolment. They may even begin doing the numerous exercises recommended. If so, they may perhaps make more sense of this one than I have been able to do: "Assume the position you would be in after the first ten yards of a sprint race and then, starting slowly, run on the same spot, gradually increasing speed to sprinting pace." But perhaps they may ask for a little help from a translator when they are told to "fill the upper part of the chest up to the apices of the lungs," and to "relax the inter-costal muscles and exhale"; for I fancy that if you said "apices" and "inter-costal" to the ordinary citizen who has not yet become a citizen soldier he would think that they were the names of horses.

To Our Readers and Photographers at Home and Abroad.

THE ILLUSTRATED LONDON NEWS" has always been famed for its treatment of the various branches of Science. Its archæological articles and illustrations are known throughout the world, and its pages dealing with Natural History and Ethnology are of equal value. These and other subjects are dealt with in our pages in a more extensive way than in any other illustrated weekly journal. We take this opportunity, therefore, of urging our readers to forward to us photographs of interest in these branches of Science.

Few people visiting the less-known parts of the world fail to equip themselves with cameras, and we wish to inform explorers and others who travel that we are glad to consider photographs which show curious customs of various nationalities, civilised and uncivilised, their sports, habits, and costumes; in fact, anything of a little-known or unusual character.

We are very pleased to receive also photographs dealing with Natural History in all its branches, especially those which are of a novel description. Our pages deal thoroughly with unfamiliar habits of birds, animals, fishes, and insects.

To Archæologists we make a special appeal to send us the results of recent discoveries.

In addition, we are glad to consider photographs or rough sketches illustrating important events throughout the world; but such contributions should be forwarded by the quickest possible route, immediately after the events.

We welcome contributions and pay well for all material accepted for publication.

When illustrations are submitted, each subject sent should be accompanied by a suitable description.

Contributions should be addressed to: The Editor, *The Illustrated London News*, 32-34, St. Bride Street, London, E.C.4.

during firing on the range, and on many other occasions. The use of all these weapons, together with the invention of tanks, carriers, armoured cars, and the development of aerial warfare, have all complicated in the most decided way his ordinary tactical training, and it is obvious that the problems which confront those responsible for his military education are such as to tax very highly their powers of instruction and organisation." The anti-aircraft gunner is faced with a target which may be travelling, at an immense height, at over 450 feet a second. The Bren gun has 172 separate parts, marvel of simplicity though it be. In six months we may have some idea as to how far a modern soldier can be trained, physically and otherwise, in six months.

A book covering so much ground is obviously impossible to review in detail. Parts of it have an interest quite apart from their military bearing. Captain Robinson's chapters on the rifle and marksmanship are excellent both in manner and matter, sound doctrine with reasons given, and useful to anybody who ever has to handle a rifle for any purpose whatsoever. The chapter on physical training by Col. Wand-Tetley, Commandant of the Army P.T.

* "The Citizen Soldier." An Authoritative Account of the Training and Duties of the Territorial Army and the Militia, Prepared with the Assistance of Leading Experts of the Territorial Army. Foreword by Maj.-Gen. John Hay Beith, C.B.E., M.C. (Hutchinson Illustrated; 5s.)

BOUGHT FOR A RECORD AUCTION PRICE: GOYA'S "DOÑA ANTONIA ZARATE."

REPRODUCED BY COURTESY OF THE OWNERS, MESSRS. KNOEDLER AND CO., AND ALSO MESSRS. SOTHEY AND CO.



A PICTURE WHICH REALISED £6800 AT A RECENT SALE AT SOTHEY'S: THE PORTRAIT OF THE BEAUTIFUL SPANISH ACTRESS, DOÑA ANTONIA ZARATE, BY GOYA (1746-1828), WHICH HAS BEEN DATED ABOUT 1805-10.

A record auction price for a Goya was paid at the sale of the collection of the late Mrs. Evelyn St. George, of Cam House, Campden Hill, at Sotheby's on July 26. The opening bid for the picture, a portrait of the beautiful Spanish actress, Doña Antonia Zarate, measuring 28 in. by 22½ in., was £2000, and after spirited bidding, it went to Messrs. Knoedlers for £6800. The previous highest price realised for a Goya at an auction was £3465, paid in 1916 for a portrait of "An Unknown Lady

in Black." The portrait reproduced above depicts the actress against a dark background, wearing a red cloak with an ermine collar over a white dress, and a white head-dress with blue ribbon. It has been dated about 1805-10. Mrs. Stanley Clarke, the daughter of the late owner, is reported to have said that her mother purchased the picture for about £4500. A picture of St. Catherine by El Greco from the same collection fetched £3800, after an opening bid of £3000.

IN a previous article in *The Illustrated London News*, of July 30, 1938, it was possible to give the barest outlines of the results of the excavations carried out on the site of Ezion-Geber (Tell el-Kheleifi), Solomon's naval base, by the American School of Oriental Research, Jerusalem. Since then there has been an opportunity to examine more carefully the materials recovered from the excavations, and to judge them in the light of facts already known, recalling particularly the passage in I. Kings 9, 26: "And King Solomon constructed a fleet of ships in Ezion-Geber, which is by Elath, on the shore of the Red Sea, in the land of Edom."

The importance of Ezion-Geber—later Elath—as a great trade as well as manufacturing centre on the cross-roads between Sinai and Egypt, Palestine and Syria, Midian and Arabia, is illustrated by a number of individual finds. Among the most important of them may be accounted the discovery *in situ* of a large broken jar (Fig. 4), on which were incised, after baking, two letters which belong to the early South Arabic alphabet. The jar was found on the floor of a room in Level III., which may be dated approximately to the latter part of the eighth century B.C. These letters are the first ever discovered in a controlled excavation, and are the earliest definitely dateable ones. The origin of the jar is a matter of speculation. It is not impossible that the Midianites used the South Arabic script, and they must have been engaged in the caravan trade between Ezion-Geber and South Arabia. One can imagine that it was in jars of this type, inscribed with the names of the contents, or of the owners, that the Queen of Sheba once brought spices to Jerusalem.

The main gateway (Fig. 3) leading into the town was found near the south-west corner of the wall, on the south side, facing the sea. Like the wall proper, it compares favourably with the gateway of any city, however large, ever excavated in Palestine.

Stamped jar-handles were again discovered this season, bearing the legend, in ancient Phœnician-Hebrew characters, "Belonging to Qosanal, the servant of the king" (Fig. 7). Qosanal is a theophorous name, and Qos is the name of an Edomite god, who was later taken over by the Nabataeans.

It was in the third city, Elath, that most of the individual small finds were made. Another inscribed jug was found in the excavations, giving in a somewhat peculiar Hebrew-Edomite script the name of the owner. On it were incised the letters meaning: "Belonging to Amzeran," although that reading is not certain. A complete necklace was found, composed of agate, alabaster, glass and carnelian beads, together with a purely Egyptian amulet (Fig. 6), in the shape of a tiny cat. The cat amulet was particularly characteristic of the cult of the goddess Bast, whose temple was at Bubastis, in Egypt, which was also the seat of the XXIInd Dynasty. It will be remembered that Shoshenk I. (Shishak), the Libyan king of Egypt, and the founder of the Bubastite Dynasty, invaded Palestine shortly after the death of Solomon. Another amulet of Egyptian origin was a Uzat eye of Horus. There were also some types of glass beads, which may well have been brought to Ezion-Geber by the Phœnician sailors who manned Solomon's ships.

In Solomon's time Ezion-Geber was a strongly fortified factory site on the shore of the Red Sea. Many of the buildings were air-conditioned for heat. It was the Sheffield of ancient Palestine, and also its most important port.

This is the picture of Ezion-Geber furnished by the second campaign of excavations, conducted

KING SOLOMON'S SEAPORT OF EZION-GEER, ON THE GULF OF AQABAH:

EXCAVATING THE "LARGEST SMELTING PLANT EVER DISCOVERED IN THE ANCIENT NEAR EAST."

By NELSON GLUECK, Director, American School of Oriental Research, Jerusalem.
(See also Photographs on opposite page.)



FIG. 1. THE EXCAVATIONS AT EZION-GEER, SOLOMON'S GREAT SEAPORT ON THE NORTH SHORE OF THE GULF OF AQABAH: AN AIR PHOTOGRAPH SHOWING PLAINLY THE EFFECTS OF THE PREVAILING NORTH WIND, DRIVING SAND-DRIFTS SOUTHWARDS, WHICH WAS USED TO PROVIDE "FORCED DRAUGHT" IN THE FURNACES OF THE ANCIENT CITY. The prevailing north wind constantly driving sand into the gulf has silted up the shore until the site of King Solomon's great port is now half a mile from the water. South of the excavated area is seen a cleared zone where the ruins of the wall of the ancient city were subsequently found.—[Reproduced by Permission of the Air Ministry. Crown Copyright Reserved.]



FIG. 2. A SKETCH MAP, SHOWING THE EXACT POSITION OF THE BIBLICAL SEAPORT OF EZION-GEER, LATER ELATH, SITUATED BETWEEN TABA AND THE MODERN AQABAH, AT THE HEAD OF THE GULF OF THE SAME NAME.

during April and May by the American Philosophical Society Expedition of the American School of Oriental Research, Jerusalem, under the writer's direction. During last season's excavations the finest and largest smelting and refining plant ever discovered in the ancient Near East was unearthed, provided with a complicated system of flues and air-channels almost modern in aspect and function.

To this refinery were brought the ores mined and partly "roasted" at smaller furnaces at various places along the length of the Arabah, which is the great rift that extends between the south end of the Dead Sea and the Gulf of Aqabah. During the present season, however, it was seen that there was a much more extensive system of smelting and refining plants, whose walls were likewise pierced with an intricate arrangement of flues and air-channels, than had previously been suspected.

The excavations are by no means concluded as yet, but it seems safe to assume that much of the first town was occupied by an elaborate complex of smelters and refineries, with the necessary air blasts for the furnaces furnished by the strong winds blowing almost continuously from the north. The entire town was, considering the country and the period, a great factory site, of a nature unparalleled in the history of the ancient Orient. A site was chosen which no builders would have selected in the normal course of events. But strong and continuous winds were needed, coming from a known direction, to provide draughts for furnaces, sweet water, a central point commanding strategic, commercial and military crossroads, and access to the sea. Copper and iron ore in great quantities was and still is present in the Arabah, and provided the most important impetus for the building of the town.

The town site chosen, thick and high walls of sun-dried brick had to be built, with flues and air-

channels in them. All the bricks in the walls of the first city measured 40 by 20 by 10 centimetres on the average, and were laid in complicated systems of headers and stretchers, with the corners of the walls well bonded together. So well was the work done that some three thousand years later many of the walls of the first town still stand almost to their original height, while walls in modern Aqabah crumble or pull apart at the corners a few years after being built.

There was, so far as we know, only one man who possessed the strength, wealth and wisdom capable of initiating and carrying out the construction of a highly complex and specialised site such as the factory town of Ezion-Geber in its first and greatest period—King Solomon. He alone, in his day, had the ability and the vision and the power to build a great factory town and seaport a comparatively long distance from the capital city of Jerusalem (thirteen days distant by camel). With the building of Ezion-Geber, Solomon was able to have smelted and refined and worked up into finished products the ores extracted from his great copper and iron mines in the Arabah and was then able to export them directly by sea and by land in exchange for the spices and ivory and gold and precious woods of Arabia and Africa and India. The wise ruler of Israel was a copper king, a shipping magnate, a merchant prince, a great builder. Through his manifold activities he became both the blessing and the curse of his country. His far-flung net of activities extended from Egypt to Phœnicia, and from Arabia to Syria. The new town of Ezion-Geber which he built represents one of his greatest, if, indeed, up to the present time, one of his least known accomplishments.

EZION-GEBER FINDS: KEY ARABIC CHARACTERS; A "NON-ARYAN" SWASTIKA.

PHOTOGRAPHS BY NELSON GLUECK, DIRECTOR, AMERICAN SCHOOL OF ORIENTAL RESEARCH, JERUSALEM



FIG. 3. TRODDEN BY SOLOMON'S CAPTAINS WITH THEIR "GOLD, SILVER, IVORY, APES AND PEACOCKS" (I. KINGS): THE MAIN OR SEA-GATE IN THE MASSIVE WALL OF EZION-GEBER, AS NOW EXCAVATED AT THE HEAD OF THE AQABAH GULF (VISIBLE BEYOND).



FIG. 4. THE EARLIEST RECORDED SOUTH ARABIC SCRIPT EVER DISCOVERED IN A CONTROLLED EXCAVATION: A SHERD OF THE EIGHTH CENTURY B.C. FROM ELATH, WHICH SUCCEEDED EZION-GEBER ON THE NORTH SHORE OF THE GULF.



FIG. 5. FAMILIAR MODERN SYMBOLS USED BY POTTERS AT EZION-GEBER UNDER KING SOLOMON: THE SWASTIKA, THE "STAR OF DAVID," AND THE "BYZANTINE" CROSS.



FIG. 6. ELOQUENT OF TRAFFIC WITH PHARAONIC EGYPT, WHOSE COMMERCIAL ACTIVITIES THE SOLOMONIC EMPIRE EMULATED: AN EGYPTIAN BUBASTITE AMULET (MUCH ENLARGED). (By Courtesy of the Palestine Dept. of Antiquities.)

IN partnership with King Hiram of Tyre, King Solomon maintained a fleet of ocean-going ships trading at regular intervals, as the result of which imports into Palestine

controlled Edomite territory on his South-east border. This Ezion-Geber site is of the widest historic and romantic interest in view of the association of King Solomon's realm with the Ophir mines, and the beautiful Ethiopic Queen of Sheba. As a correlative outcome of this year's work Mr. Nelson Glueck, who provides on the opposite page a full description of the most recent discoveries at Ezion-Geber, now declares that "the entire town, considering the country and the period, was a great factory site of a nature unparalleled in the history of the ancient Orient."



FIG. 7. THE SEALS (ACTUAL SIZE, 1/2 IN. IN WIDTH) OF A LOCAL OFFICIAL, POSSIBLY INSPECTOR OF WEIGHTS, READING ON THE UPPER REGISTER: "BELONGING TO QOSANAL," AND LOWER, "THE SERVANT OF THE KING." "QOS" WAS THE NAME OF AN EDMITE GOD.

became so lavish that in Jerusalem silver was said to be as common as stones and cedars as sycamores. Research has established that an extensive commerce, like that with the legendary Ophir, flowed through a port at the head of the Gulf of Aqabah, the "Ezion-Geber" of the Book of Kings. That Solomon was able to use a port at the head of the Gulf of Aqabah implies that he



A PAGE FOR COLLECTORS. MUSICAL-BOXES.

By FRANK DAVIS.

AN age of gramophones and wireless perhaps despises the tinkling, sentimental harmonies of the musical-box, just as some rich men despise their hard-working, simple peasant-ancestors. Nevertheless, canned music is canned music, however primitive

movements of the songster are imitated—he flutters his wings and turns his head. It will be readily understood that the mechanism for movement and sound is exceedingly delicate, and requires the greatest skill on the part of the maker. The fashion for these pretty things had its origin in the vogue for keeping canaries and teaching them to sing different tunes. One played an ordinary musical-box to the bird, and in time he replied to the tune. There is a famous print after Chardin in which a woman holds the box on her knee and looks at her canary in its cage. From this to an artificial bird which would sing by itself was a natural progression, dependent only upon the ingenuity of man. The problem was solved about 1775, and these pretty pieces of nonsense remained in fashion for the first twenty-five years or so of the nineteenth century, and, indeed, were the basis of a considerable industry. The final triumph of ensuring that the creature would sink back automatically into its bed and be covered by the slide seems to have been accomplished in 1790.

The most famous makers were two Swiss, Jaquet-Droz and Leschot, at Geneva, the latter the apprentice of the former's father. They had a London house, and on certain of their later works is the signature "Jaquet-Droz et Leschot, London." There is a particular interest in this for ourselves, as appears from the following extract from a letter written by Leschot, in Geneva, to the firm of Louis Georges, in Berlin. It is dated Feb. 13, 1793:

"As regards the bird-snuffbox you have seen, this is certainly from our workshop. . . . We have regularly engraved the name on them as if they came from England, because of the general opinion that everything of this kind made in that country shows finer workmanship, is better finished, and is stronger than those made elsewhere. Nevertheless it is at my place that the things are manufactured, and in ordering them from me you will

have the advantage of a better price."

Who says that business is dull or that the history of business makes dull reading, when such a vivid sidelight upon conditions survives in documentary form? There is no space here in which to describe the principle of the ingenious mechanism of these charming things—and, indeed, I'm the last person qualified to describe it; but those who have a bent for mechanics will find detailed plans in the two large quarto volumes entitled "Le Monde des Automates," by Alfred Chapuis and Édouard Gelis, published in Paris in 1928. The fashion gradually died out in Europe, but not further east, and many of the finest examples have been retrieved from Turkey and India.

If these little singing-bird boxes are the ultimate refinement of a particular fashion, and belong entirely to the late eighteenth and early nineteenth centuries, they are also the descendants of a much more ancient

series of experiments—not to go further back through the centuries, they derive in some sort from the earliest clocks. I don't mean that they are clocks themselves, but that they would hardly have existed if generations of enquiring minds had not devised accurate methods of telling the time. Everyone is aware of the pleasure our ancestors took in the mechanical figures of, for example, the great clock in Wells Cathedral (date 1394).

They were not content merely to know the time: they wanted a realistic joust as well. They would have found the B.B.C. time signal a trifle bleak, and would have demanded a vivid description of a tournament as an accompaniment to the nine o'clock pip-pip. It is this naïve, child-like love of inanimate dolls imitating nature which accounts for the popularity of mechanical toys down the centuries, and not all our sober common sense can eradicate it.

From a monumental clock in a cathedral to a table clock for a German prince of the sixteenth century was a reasonable progression—something, for example, in the shape of a tower, with musicians playing their instruments on a platform, or a ship with moving figures, or a chariot, or a dancing bear—and later, in the eighteenth century, bracket clocks with figures moving across a landscape, or long case clocks with similar figures above the dial. There is no end to the little world of automaton, on watches, in pictures, as dancing figures, with music and without.

Fig. 2 is an excellent example of a later musical toy recently presented to the Victoria and Albert Museum; and between the types of these two illustrations—so different in character—must be remembered the centuries of experiment which made them possible. In a way they are forerunners of all the intricate machinery without which modern civilisation could not exist. Part of their charm is their utter uselessness in any practical sense: there's no place for snuff in the gold snuffbox, and unless you can handle it and set it going it is deprived



1. THE FORERUNNER OF TO-DAY'S "CANNED MUSIC": A MUSICAL-BOX (OPEN AND SHUT) OF C. 1790, WHOSE SINGING BIRD FLUTTERS ITS WINGS AND TURNS ITS HEAD WHILE WARBLING; THEN, ITS SONG FINISHED, SWINGS BACK INTO A RECESS. The fashion for these charming toys derived from the custom of teaching live canaries to sing different tunes by playing ordinary musical-boxes to the bird. The *tabatière* illustrated is in gold, and was made in Paris, the makers of the movement being the brothers Rochat. These *tabatières* had little room for snuff and served no practical purpose.

(By Courtesy of Messrs. Berry.)

the means by which it is produced, and the great modern industry might look back without too much disdain upon its modest beginnings. Some of these display extraordinary ingenuity, and yet more extraordinary charm both for ear and eye. How to convey this charm by means of words and a photograph? Perhaps it is impossible. Yet who among us, however crusted and dyspeptic, has not at least once in his life dawdled in Regent Street as a panda or Donald Duck in miniature tumbles on the pavement, or an ordinary mechanical mouse runs round in circles? Such things, now the common products of the toy-maker, were once marvels: multiply this marvel a hundred times, add song and dance, and gold (and sometimes enamel and pearls), and you find something like Fig. 1—the singing bird in a beautiful little box, the box of gold, the movement by the brothers Rochat, made in Paris about the year 1790. When the bird has finished its song, it swings back into a recess and is covered by a slide, so that the lid can be shut. There are not many such things in existence—and still fewer of this quality. Not only the song, but the



2. TOTALLY DIFFERENT IN CHARACTER TO THE SINGING-BIRD *TABATIÈRE* OF FIG. 1: A MUSICAL TOY OF C. 1850, OF EITHER SWISS OR GERMAN FACTURE.

This delightful toy was recently presented to the Victoria and Albert Museum. The troupe of villagers dance to the plaintive music of the organ-grinder's turning, the latter beating time with his baton, while his monkey jumps up and down. The toy was previously reproduced in our issue of May 13.

of half its virtue, which is why such delicate things are difficult to appreciate when one sees them in a museum. They are, in a very special sense, personal possessions.



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Plage Crêpe and Cuban Canvas.

Although these names at the moment may not seem to be of much importance, it is safe to predict that within the next few weeks they will be everywhere discussed. It is Cuban canvas which has been used by Debenham and Freebody for the frock on the left of the group. It is admirably cut and tailored, and although a crêpe de Chine scarf completes the scheme the cost is only 52s. 6d. Plage crêpe makes the dress in the centre; the ends of the cravat tie are circular in formation and cleverly stitched, while the pockets are arranged in a similar manner. In white and pastel shades it costs 69s. 6d. The frock on the right must be carefully studied; it is carried out in washing crêpon with braid belt, and has been designed for the younger woman who is not quite so slender as she would like to be. The gathers in front and the yoke are helpful. It costs 78s. 6d., and is available in dark as well as light shades.

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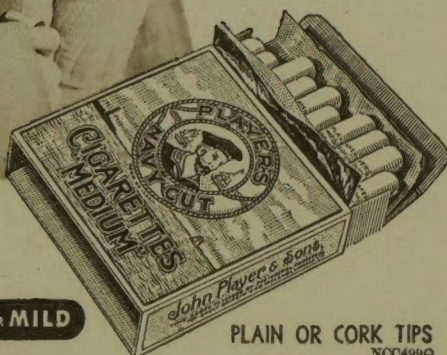
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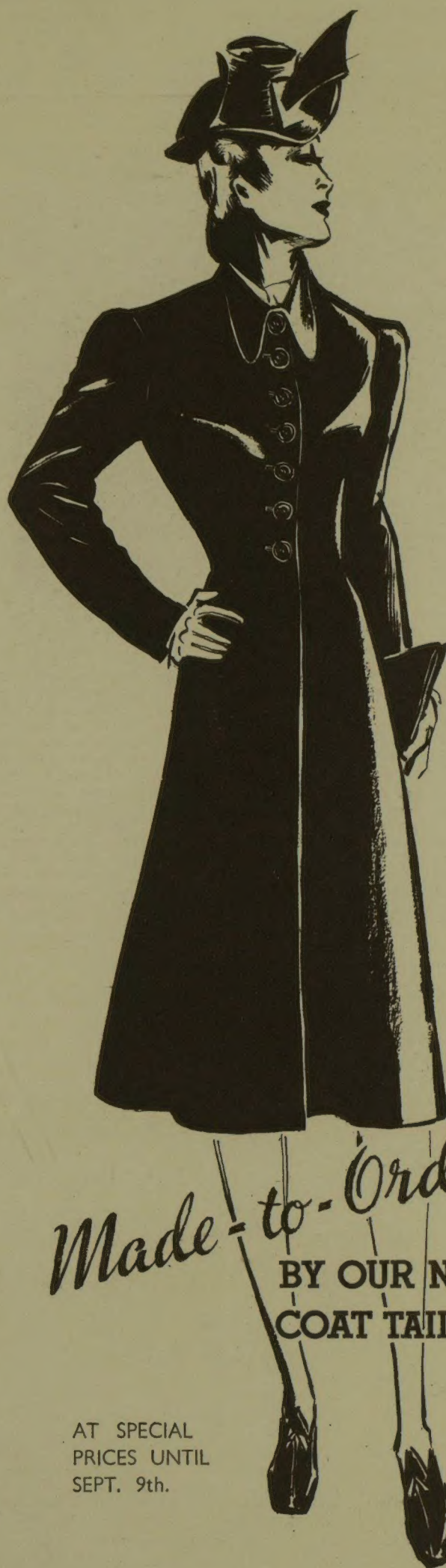
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NOTES FROM A TRAVELLER'S LOG-BOOK.

By EDWARD E. LONG, C.B.E., F.R.G.S.

THE BLACK FOREST.

GERMANY has many delightful summer- and winter-time playgrounds, but none excels the Black Forest. In the summer-time one can walk along well-kept tracks amidst the most delightful scenery, climb rugged peaks,

fertile valleys. Principal industries are log-cutting and the rearing of cattle, and the picturesque local costume of the sturdy peasantry is one that is very pleasing. Divided into two parts, the north and central, and the south, by the deep Kinzig Valley, the Black Forest has excellent communications by rail, being traversed by the Albtal railway from Karlsruhe to Herrenalb; the Murgtal railway from Rastatt to Freudenstadt; the Renchtal railway to the spas and summer resorts in the Rench Valley; the Black

Forest railway, 92 miles in length, which crosses the entire Forest; the Höllental railway, which runs from Freiburg through the romantic gorges of the Höllental and Wutachtal; and other lines. There are mountain railways such as the Schauinsland funicular railway, the Three Lakes railway, to Lake Titisee and the Feldberg, and others; and there is an extensive road system, with good motor services which bring all parts of the Black Forest within easy reach.

As for holiday centres, one of the most delightful in the northern Black Forest is Baden - Baden. This is also a spa, and has a very beautiful situation, amid lovely hill and woodland scenery in the valley of the Oos. Very well organised for sport and amusement, with a swimming pool, golf, tennis, and horse-racing, performances of opera and drama,

concerts and recitals, and a casino, it is the starting-point of the famous Black Forest road, and there are motor-coach trips to all the well-known beauty spots of the Forest, whilst an aerial railway takes one to the summit of the Merkur, 2030 ft. Other, and smaller, resorts are Bad Rippoldsau, a ferruginous and mud-treatment spa, nearly 2000 ft. up; Bad Dürrenheim, said to be the highest saline spa in Europe; Donaueschingen, a pretty little town; Tribach, which has magnificent mountain scenery; Rastatt, owning a bathing

beach; Wildbad, in the valley of the Enz; Herrenalb, ringed round with hills; and Freudenstadt, which lies amid extensive forests of pine, with the Kniebis, 3184 ft., close by. This last is an important holiday centre, with good sport and amusement facilities.

In the Southern Black Forest, the largest and a very popular holiday centre is Freiburg-im-Breisgau, a fine old cathedral and university town, with some splendid mediæval buildings, and a minster considered one of the finest Gothic churches in Germany, the tower of which is very beautiful. Freiburg, with its theatres, concert halls, daily concerts in the Stadgarten, and bathing beach, is the centre for excursions in the lovely Höllental Valley, to old-world Breisach, and to Zähringen Castle, and from it a funicular railway takes one to the summit of the Schauinsland, 4217 ft. Badenweiler is another large and well-organised holiday centre, and amongst smaller ones are St. Blasien, in the heart of superbly wooded country; Schönau, in the Wiese Valley; Todtnoos, scattered on hill-slopes, and Titisee, on the shores of a lovely lake, and amid glorious scenery, extremely up to date as regards sport and amusement, and ideally situated for exploring the heights of the Southern Black Forest, among which the Feldberg towers over all.



ONE OF THE HIGHEST POINTS IN THE BLACK FOREST, AND SHOWING THE OPEN NATURE OF THE SURROUNDING COUNTRY: A FINE VIEW OF THE 4600-FOOT HERZOGENHORN.

fish, bathe, and boat, and witness interesting scenes of peasant life, which remains charmingly unspoiled. In the winter-time this region, with its many open spaces, free of rocks, and with contours admirably suitable for the purpose, is an ideal winter sports field, with almost any number of good ski runs (the Feldberg district is one of the cradles of German ski-ing) and abundant opportunity for tobogganing, bobsleighing and skating.

With a length of about 100 miles, a breadth varying from 10 to nearly 40 miles, and an area of 1800 square miles, the Black Forest, so named from its large, dark evergreen forests of fir and pine, has numbers of hills, mainly conical in shape, with heights touching 4900 ft. (the Feldberg) and 4600 ft. (the Herzogenhorn), fine open uplands, and



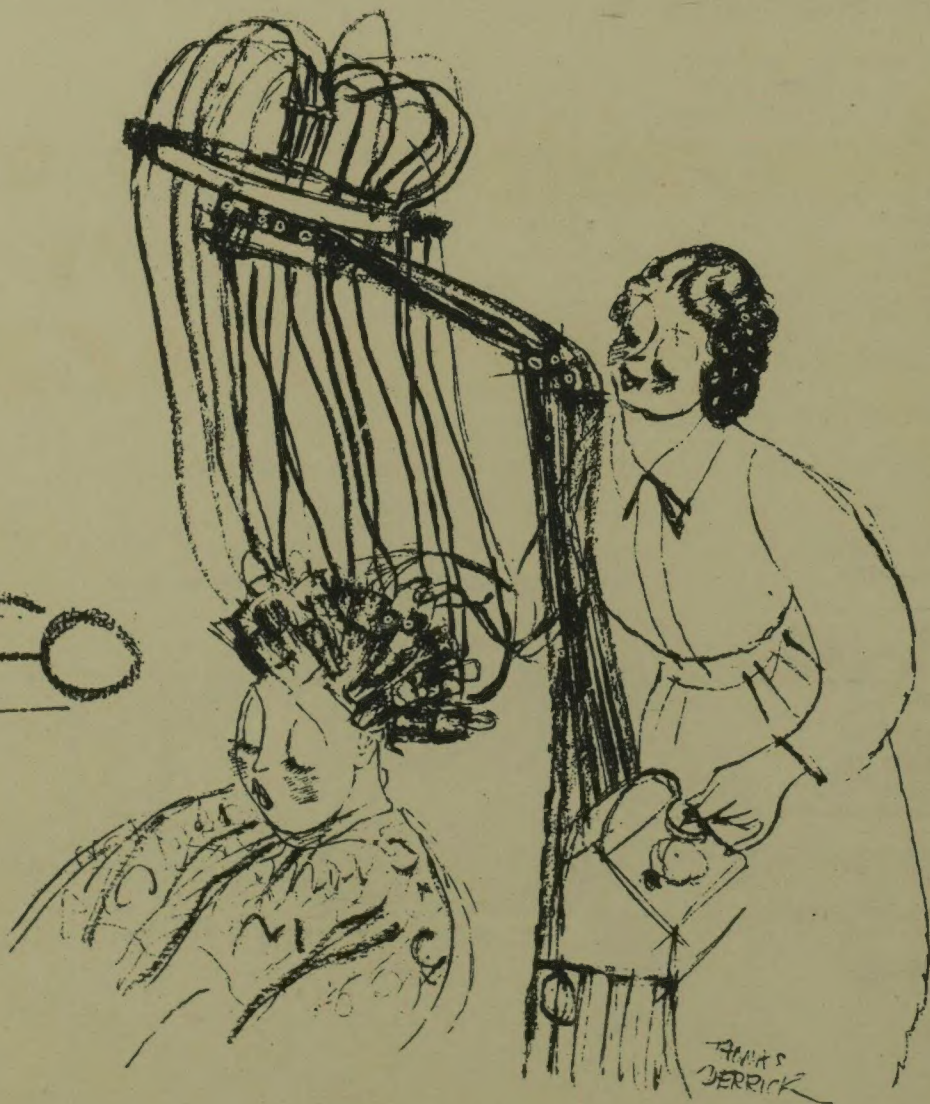
ONE OF THE MANY CHARMING LITTLE HOLIDAY RESORTS IN THE BLACK FOREST: BAD LIEBENZELL, NESTLING IN THE NAGOLD VALLEY AMONGST MAGNIFICENT FORESTS OF FIR AND PINE. (Photographs by Courtesy of German Railways.)

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GERMANY—(Continued)

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